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SIXTH INTERNATIONAL CONGRESS ON TUBERCULOSIS

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IN SIX VOLUMES

VOLUME FOUR, PART ONE

PROCEEDINGS OF SECTION VI

State and Municipal Control of Tuberculosis

WASHINGTON, D. C.

SEPTEMBER 28 TO OCTOBER 5, 1908

Transactions

of the

Sixth International Congress on Tuberculosis.

WASHINGTON, SEPTEMBER 28 TO OCTOBER 5, 1908.

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SECTION VI.

State and Municipal Control of Tuberculosis.

FIRST SESSION.

Monday afternoon, September 28, 1908, in the New National Museum.

THE STATUS OF THE TUBERCULOSIS CAMPAIGN IN VARIOUS COUNTRIES.

The President of the Section, Surgeon-General Walter Wyman, called the Section to order at half past two o'clock. General Wyman expressed his pleasure, shared by the members of the Central Committee, in greeting the foreign representatives who have given such worthy aid to the advancement of State and municipal control of tuberculosis. He extended a greeting to American representatives, and thanked them all for the interest they have shown, and for their contributions toward the success of the Section.

He nominated the following honorary presidents of the Section:

Governor Conrad Cedercrantz, Stockholm, Sweden.
Dr. Eduardo Liceaga, Mexico, Mexico.
Dr. F. Montizambert, Ottawa, Canada.
Dr. Arthur Newsholme, London, England.
Regierungsrat Dr. Hamel, Berlin, Germany.
Stabsarzt Dr. Helm, Berlin, Germany.
Dr. W. Kürsteiner, Bern, Switzerland.
Dr. J. L. Jacobsen, Havana, Cuba.
Dr. Holger Rördam, Copenhagen, Denmark.

These were unanimously elected honorary presidents of the Section.

The first paper on the program was that of Dr. Hermann von Schrötter, of Vienna, Austria, entitled "*Ueber der stättliche und private Fürsorge gegen die Tuberkulose in Oesterreich*" ("*Governmental and Private Measures Against Tuberculosis in Austria*").

Dr. von Schrötter excused himself from reading his paper, saying that he had read it in Philadelphia at the Conference, where many of those now present had heard it. Dr. von Schrötter also deposited a printed account of the Austrian movement against tuberculosis under the title "*Vorschriften der K. K. Oesterreichischen Behörden zur Bekämpfung der Tuberkulose.*"

Continuing, Dr. von Schrötter said: "It cannot be emphasized enough—and herewith I am touching the care of the State—that the attempts of all the mentioned private institutions and associations in every way enjoy the most careful aid of the Austrian Government. By a law of December 28, 1906, the amount of two million kronen (equal to more than $400,000 in American standard) has been invested by the government for the crusade against tuberculosis. This fund is to be managed by a board of trustees, to which belong representatives of the Ministry of Home Office, the Financial Department, the Department of Public Instruction, the Chief of the Board of Health, and the private tuberculosis associations. This 'Curatorium,' at its meeting of February 29, 1908, decided to distribute large amounts to the most important societies, as the 'Verein Heilanstalt Alland' and the 'Verein Viribus Unitis.' In the same way it was endeavored to secure some amounts for the aid of institutions to be founded later. If the present amount of $400,000 appears small in comparison with the most expensive requirements of a successful combat against tuberculosis, the Austrian Parliament, in granting this mentioned credit, has entered a path which, as I believe, has not yet been followed by any other country. It might be expected that an official undertaking like this would be an example for other countries. At the meeting of yesterday we learned, from the interesting communication of Governor Stuart, that the State of Pennsylvania has already decided to give $2,000,000 for this most important purpose."

MEASURES AGAINST HUMAN TUBERCULOSIS IN DENMARK.

By Holger Rördam,

Navy Surgeon, Member of the Danish Parliament, Chairman of the Executive Committee of the National Association for the Combating of Tuberculosis, Delegate of the Danish Government.

Denmark is not among the countries that suffer most from the scourge of tuberculosis.

During the last five years the average pulmonary tuberculosis death-rate was annually 1.5 per 1000; the death-rate for all forms of tubercular diseases about 2 per 1000 annually. Owing to the increasing prosperity of the population as well as to the spread of knowledge and to sanitary improvements, tuberculosis has been steadily decreasing during the last decade, which fact will be fully borne out by the following statistics of the tuberculosis death-rate in Copenhagen.

DEATH-RATE FROM CONSUMPTION AND OTHER FORMS OF TUBERCULAR DISEASES IN COPENHAGEN 1876–1906.

Year.	Number of Inhabitants.	Consumption.		All Forms of Tubercular Diseases.	
		Number of Deaths.	Per Cent.	Number of Deaths.	Per Cent.
1876	216,000	653	3.02	771	3.57
1877	222,000	686	3.09	821	3.70
1878	226,000	637	2.82	780	3.45
1879	232,000	727	3.13	902	3.89
1880	240,000	760	3.17	945	3.94
1881	250,000	704	2.82	883	3.57
1882	255,000	765	3.00	1001	3.93
1883	263,000	699	2.66	897	3.41
1884	274,000	750	2.74	1006	3.67
1885	284,000	705	2.48	949	3.34
1886	289,000	653	2.26	930	3.22
1887	295,000	754	2.56	954	3.23
1888	303,500	808	2.66	1018	3.56
1889	308,600	766	2.48	1026	3.32
1890	314,600	735	2.34	1005	3.19
1891	319,000	680	2.13	968	3.03
1892	323,000	634	1.96	939	2.90
1893	327,000	610	1.87	895	2.74

DEATH-RATE FROM CONSUMPTION AND OTHER FORMS OF TUBERCULAR DISEASES IN COPENHAGEN 1876–1906.—(*Continued.*)

YEAR.	NUMBER OF INHABITANTS.	CONSUMPTION.		ALL FORMS OF TUBERCULAR DISEASE.	
		Number of Deaths.	Per Cent.	Number of Deaths	Per Cent.
1894	331,300	660	1.99	910	2.75
1895	335,700	661	1.97	984	2.93
1896	340,500	648	1.90	904	2.65
1897	345,000	625	1.81	870	2.52
1898	349,000	611	1.75	851	2.44
1899	354,000	603	1.71	803	2.27
1900	358,000	657	1.84	877	2.45
1901	381,000	585	1.52	825	2.14
1902	411,000	489	1.19	706	1.72
1903	417,000	588	1.41	820	1.96
1904	423,000	632	1.49	855	2.02
1905	425,000	671	1.58	907	2.13
1906	432,000	660	1.53	842	1.95

As will be seen from the following tabular and graphic statement, a relatively happy condition of things may be said to exist in Copenhagen in comparison with other large cities of Europe, especially western and northern Europe.

DEATHS FROM TUBERCULOSIS PULMONUM PER 100,000 INHABITANTS.

YEAR.	PARIS.	VIENNA.	MUNICH.	CHRISTIANIA.	STOCKHOLM.	BERLIN.	LONDON.	COPENHAGEN.	AMSTERDAM.	ROTTERDAM.
1899	572	379	299	281	261	219	187	171	168	159
1900	379	379	325	276	245	233	175	183	184	167
1901	402	353	274	232	247	219	170	154	152	149
1902	396	344	273	204	231	204	164	119	143	136
1903	382	334	255	212	215	193	160	141	138	130
1904	382	314	258	219	222	208	167	149	143	122
1905	380	329	286	278	222	214	147	158	146	133
Average number	413	347	281	243	235	213	167	153	153	142

This happy state of things in Copenhagen and Denmark with regard to the tuberculosis mortality is not due to special measures taken in Denmark to combat tuberculosis, but may be said to be due, on the whole, to the standard of culture attained by this country. It was only recently that Denmark began to participate directly in the fight against tuberculosis; to make up for this, however, great efforts have been made of late on the part of the gov-

ernment as well as by municipal bodies and private persons, so that Denmark is no doubt the country most advanced in combating tuberculosis and the one where the greatest sacrifices are being made in fighting this disease.

Private Measures for the Combating of Tuberculosis.

For several years Danish medical men have been making strenuous efforts to combat tuberculosis; the only results of these efforts for a number of years, however, being one seaside hospital for scrofulous children, the Refsnaes Seaside Hospital. In the year 1898 the Danish Medical Association obtained a Government grant, which enabled them to publish a short pamphlet on tuberculosis, 200,000 copies of which were distributed free, and to have a "tuberculosis placard" hung up in all public and many private buildings in Denmark; and in 1900 the first Danish consumption sanatorium, Vejlefjord Sanatorium, to which Danish medical men had contributed very largely, was opened, thanks to the energy of the present medical superintendent of the institution, Professor Saugman.

At the initiative of Professor Carl Lorentzen and Mr. Holger Rördam, Navy Surgeon and Member of the Lower House of the Danish Parliament, a Danish National Association for the Combating of Tuberculosis was founded on the 16th of January, 1901, an association which has been most successful in its endeavors. It has about 30,000 members, contributing about 100,000 kroner (about $25,000) in yearly subscriptions, besides which it has received several large contributions, gifts, and bequests. Great efforts for combating tuberculosis have, moreover, been made by the National Association by the publishing of instructive pamphlets, by instructive lectures, —lately special lectures for school children,—and especially by the erection of sanatoriums for the necessitous.

At present the National Association maintains five consumption sanatoriums for the necessitous, with accommodation for about 500 patients, besides having contributed toward the erection of other sanatoriums in out-of-the-way islands, such as Bornholm and the Faroe Islands.

The total expenses of all the National Association's sanatoriums amount to 1,750,000 kroner.

Finally, the National Association maintains a tuberculosis station (dispensary) in Copenhagen.

The Danish Coöperative Sanatorium Society was founded in 1904 with the object of building and maintaining one or several sanatoriums, where members suffering from consumption might be treated and nursed as cheaply as possible. The subscription per member is 3 kroner once for all, and may be paid at once or in 28 yearly instalments. The society has built two sanatoriums with accommodation for 250 patients in all, the expenses amounting to about 900,000 kroner.

The Danish Children's Homes Society was founded in 1902 with the object of building and maintaining homes for tuberculous children. At present the society has two children's homes, one for boys and one for girls.

The society "Boserups Minde" was founded in 1903 with the object of supporting necessitous members, especially persons living in Copenhagen, who, through suffering from pulmonary tuberculosis, have sustained economic loss, of providing them with suitable food at moderate prices, and of sending them into the country. The society has a fund for starting and maintaining country colonies.

The society Copenhagen and Environs Children's Sanatoriums was founded in 1889 with the object of providing gratis treatment for poor, ailing, especially scrofulous, children. The society has built a sanatorium.

In addition, there are other societies, which, by their efforts, contribute indirectly toward combating this disease, even if they were not founded with that immediate object. The Hygienic Society was founded in 1879 with the object of contributing to the solution of such hygienic problems as are of special importance to Denmark. The Fresh Air Fund Society was founded in 1889 with the object of sending Copenhagen children and adults into the country. The society Poor Children's Country Colonies was founded in 1892 with the object of providing for orphans by sending them to country colonies. Delicate Children's Open-air Colonies Supported by the Children's-Charity-Day Fund was founded in 1905. The Milk-distributing Society was founded in 1874 with the object of facilitating the procuring of sterilized milk for infants. The Society for the Protection of Infants combats children's diseases. The Society for Promoting the Welfare of Infants was founded in 1885 with the object of providing food and means of hygienic nursing for children under two years. The Society for the Care of Children distributes food to widows with children under four years of age. Numerous dinner-distributing societies provide dinners for children and adults free or at moderate charges. The Society for Improving School Hygiene was founded in 1903. Numerous rest and convalescent homes are maintained for children as well as for adults. Other agencies which should be mentioned are the Coöperative Society for the Erection of Dwellings for the Working Population, the Society of 1865 for Building Cheap Workmen's Cottages, the Tagensvej Workmen's Cottages, Workmen's Building Society, Classen's Cottages, the Medical Association's Cottages, etc., and the Danish Society for the Protection of Workmen, founded in 1906.

Public Measures for the Combating of Tuberculosis.

Besides the above-mentioned private measures, whose object is to combat tuberculosis directly or indirectly, very energetic public measures have been taken lately with the same object. In 1898 the Danish Medical Asso-

ciation obtained a Government grant to pay for the publishing of a short pamphlet on tuberculosis, which, besides being printed in 200,000 separate copies, appeared in the University Calendar for 1898, so that 400,000 copies in all were distributed free to medical men, at infirmaries, chemists' shops, at all railway stations, at schools of every description, at factories, workshops, etc. At the same time 10,000 lithographed metal placards with a few brief instructions for guarding against tuberculosis were hung up in public and private buildings in all parts of the country.

On May 11, 1897, notification of cases of tuberculosis was made compulsory by Act of Parliament, which act was, however, repealed March 31, 1900, as it did not work satisfactorily.

By the Prevention of Infectious Diseases Act of March 31, 1900, disinfection of premises where persons who have died from tuberculosis have stayed permanently, and notification of deaths from tuberculosis were made compulsory, the expenses of such measures being borne by the State.

Under the Poor Relief Act of April 9, 1891, No. 67, Sec. 61, amended by act of Parliament of March 20, 1901, municipal grants toward the education, support, maintenance, treatment, and nursing of scrofulous, tuberculous persons suffering from lupus are not to be looked upon as poor relief, if the person in question is treated in hospitals or sanatoriums maintained or recognized by the State.

By order of the Minister of Public Works placards prohibiting expectoration on the floor are to be found in all government railway carriages, waiting-rooms, steamers, etc.

By Act of Parliament of 1901 measures were taken for combating tuberculosis among cattle and pigs.

On November 18, 1901, a Commission was appointed by Royal Order to give their opinion as to how endeavors to combat tuberculosis might be supported by the State, partly by legislative measures, partly by suitable grants. The chairman of the National Association, V. Oldenburg, Lord Mayor of Copenhagen, was elected to the chairmanship of this Commission, which in December, 1902, submitted its report to the Rigsdag (Danish Parliament) recommending the passing of two bills, which were two years later passed in all essentials in the form recommended by the Commission. These two acts form the basis of the rapid progress made in Denmark during the last years in fighting tuberculosis, and with one stroke, as it were, raised Denmark to preëminence among the countries combating this disease. Here follow the two acts:

Prevention of Tuberculosis Act of April 4, 1905

Sec. 1.

The health commissions and epidemic commissions mentioned in the Prevention of Infectious Diseases Act No. 43 of March 31, 1900, shall, under

control of the chief health commissions mentioned in the same Act, direct the local measures for prevention of tuberculosis.

Sec. 2.

Every medical practitioner shall according to the rules laid down for this purpose by the Royal Board of Health send in a report to the town or district doctor on all the cases of tuberculosis of the lungs or the larynx which are treated by him. These reports shall be drawn up on forms sanctioned by the Board of Health, containing among other things information as to the name, age, position, and residence of the patients and which by provision of the Ministry of Justice shall be supplied gratis to medical practitioners.

Every medical practitioner shall send in a similar report on the cases that are being treated by him at the time of the taking effect of this Act.

Sec. 3.

When a person dies from either of the forms of tuberculosis mentioned in Sec. 2, the medical practitioner who was treating the person in question at the time of his death or in case of the person in question not having been under medical treatment, the medical man or the post-mortem examination officers who examine the body, shall as soon as possible notify the death to the health commission (epidemic commission) in question.

Sec. 4.

The health commission (epidemic commission) shall be entitled to order the cleaning or disinfection of such premises as have been inhabited permanently by persons who have died from either of the forms of tuberculosis mentioned in Sec. 2, as well as of the wearing apparel or bedding used by such persons.

Wearing apparel and bedding used by such deceased persons shall not, contrary to the prohibition of the medical man in question or the health commission, be used, given away, or sold without being first duly disinfected.

Sec. 5.

Furthermore, when a person suffering from either of the forms of tuberculosis mentioned in Sec. 2 has moved away from premises inhabited permanently by him, the health commission (epidemic commission) shall, if the medical man who has treated the patient recommends such measures, be entitled to order the cleaning or disinfection of the premises in question, and the commission shall also be entitled to order such cleaning or disinfection whenever it at any other time may find occasion to do so.

Sec. 6.

If it come to the knowledge of the health commission (epidemic commission) that a person suffering from either of the forms of tuberculosis mentioned in Sec. 2 lives under such conditions or that the conditions in his dwelling be such as to be favorable to the transmission of the disease to other persons, the commission shall be entitled to take measures to prevent this. If the sick person refuses to comply with the measures taken by the

health commission, the commission shall be entitled to appeal to the chief health commission, whose decision shall be final. No measures involving a sick person's compulsory relinquishment of his employment against his will, or the cessation of co-habitation in the case of married couples, shall be enforced. Every person who under the section in question is sent to a hospital shall be treated at the joint expense of the State and the local Municipal Body. (Sec. 14, paragraph II.)

Sec. 7.

The health commission (epidemic commission) shall be entitled to prohibit women suffering from tuberculosis from taking service as wet-nurses.

Sec. 8.

No municipal council (health commission) shall, according to Act No. 43 of March 1, 1895, regarding the inspection of children boarded out, give any person permission to take charge of a child before a doctor's certificate is produced stating that the house in question is free from tuberculosis of an infectious nature, as well as that the child in question, if it is to be received in a family with children, is not suffering from the said disease.

Sec. 9.

The premises and the school-desks and forms, etc., of all public as well as private schools shall be kept duly cleaned and kept free from dust and dirt.

The Ministry of Ecclesiastical Matters and Public Instruction shall issue regulations as to this cleaning as far as the state-schools are concerned.

As for the board-schools, each municipal council shall after consulting together with the school-commission work out proposals for detailed regulations for the cleaning of its schools, which proposals shall be submitted to the school-board. Should the board refuse to ratify the proposals, they are to be submitted to the Ministry of Ecclesiastical Matters and Public Instruction for final decision. Every municipal body shall take care that the premises of its schools are kept clean according to the ratified regulations and to pay the expenses of such cleaning. The obligations of the municipal body do not, however, include the airing of the school-rooms, which is the duty of the teacher in question. The school-commission shall ascertain that the provisions of the regulations are obeyed in every particular.

As for the private schools, the health commission shall take care that proper measures are taken for the cleaning of the school premises. It shall not, however, be incumbent on private schools to do more in this respect than what is required of public schools of the same kind. The final decision as to such questions rests with the Ministry of Ecclesiastical Matters and Public Instruction.

Sec. 10.

If it come to the knowledge of a teacher that there is any case of tuberculosis among the children of his school, he shall notify this fact to the school commission, who shall then place the child under special observation and—if the disease be declared by doctor's certificate to be infectious—apply to the school-board to decide whether the child ought to be released from attending school. If the child be released from attending school, the school board shall

decide whether suitable instruction may be imparted to the child in question in another way. One-fourth of the expenses of such instruction shall be paid by the municipal body, three-fourths by the State.

Sec. 11.

No teacher shall be appointed at any public school before producing a doctor's certificate issued within the last three months, stating that he does not suffer from infectious tuberculosis of the lungs or the larynx.

Every teacher who is dismissed through suffering from infectious tuberculosis of the lungs or the larynx shall receive a pension amounting to two-thirds of the salary he received at the time of his dismissal.

Similar regulations shall apply to such other government officials and functionaries as by virtue of their office are in so close contact with the people as to expose them to the dangers of infection of tuberculosis of the lungs and larynx.

The expense of pensions granted according to the provisions of this section shall be borne by the State as far as government officials and functionaries are concerned; as far as municipal officials and functionaries are concerned, by the municipal body in question as well as by the school fund. Should the person in question be cured so that he may be considered free from infection and he reënters the public service for which he receives a salary, his pension shall be stopped altogether or shall be reduced in proportion to his present salary. The pension of any person who, after having been cured, refuses to accept a public office, corresponding to the one he formerly filled and with at least the same income, shall also be stopped.

Sec. 12.

Every person who, during compulsory military service, is proved to be suffering from infectious tuberculosis, shall be entitled to admission to a tuberculosis hospital. His stay at the hospital shall not, however, extend beyond the term of his military service.

Sec. 13.

Persons suffering from either of the forms of tuberculosis mentioned in Sec. 2 shall only be admitted to such workhouses and municipal almshouses as are provided with separate rooms reserved for tuberculous persons.

Sec. 14.

The expenses attendant on the cleaning and disinfection performed according to the provisions of Sections 4 and 5 shall be borne by the same public bodies that pay the expenses mentioned in Section 25 of the Prevention of Infectious Diseases Act of March 31, 1900.

Three-fourths of the expenses attendant on the treatment and maintenance of tuberculous persons according to Sec. 6 shall be paid by the State, one-fourth by the municipal body in question, the total expense amounting to kr. 2.50 per day.

Sec. 15.

The Ministry of Justice shall take measures for the dissemination of information on the nature of tuberculosis, on the causes of its origin, and on

common precautions against this disease. The expenses attendant on such measures shall be paid by means of yearly government grants.

Sec. 16 .

Offenders against the provisions of this Act or against general or special injunctions granted according to the same shall—if they do not incur greater penalties under the ordinary laws—be liable to a fine of from 2 to 2000 kr. or to imprisonment according to Section 25 of the civil penal law. Such fines shall accrue to the exchequer.

The proceedings in these cases shall be summary.

Sec. 17.

This Act shall remain in force until April 1, 1912, if it has not before that time been revised by the legislative power.

The government shall be authorized to declare this Act in force, by royal ordinance, on the Faroe Islands, with such amendments as may be rendered necessary by the conditions peculiar to these islands.

Act of April 4, 1905, *regarding Government Grants to Tuberculosis Hospitals as well as toward the Treatment of Patients in the same.*

Sec. 1.

According to the rules laid down in this Act, government subsidies may be granted to such tuberculosis hospitals and nursing homes as have been recognized by the State and are under the inspection of the Ministry of Justice, as well as toward the treatment of patients in the same. The State recognition may be granted by the Rigsdag (Parliament) on the recommendation of the Committee on Ways and Means, the institution in question having been previously subjected to an investigation on the part of the Ministry of Justice.

Sec. 2.

The following institutions shall be entitled to State recognition:

1. *Seaside hospitals,* which in this Act shall mean hospitals situated on or near the sea, and where none but, *or preferably,* children under fifteen suffering from grave forms of scrofulous diseases are admitted.

2. *Seaside sanatoriums,* which in this Act shall mean sanatoriums situated on or near the sea and where none but, or preferably, children under fifteen suffering from light forms of scrofulous diseases are admitted.

3. *Public sanatoriums,* which in this Act shall mean sanatoriums where none but patients suffering from pulmonary tuberculosis, in an early stage of the disease, are admitted.

4. *Tuberculosis hospitals,* which in this Act shall mean hospitals or hospital-wards in separate buildings, where none but patients suffering from phthisis in various stages, preferably such as from special, often only temporary, circumstances cannot profit as much as they ought to from the treatment at a sanatorium.

5. *Convalescent homes,* which in this Act shall mean homes under medical inspection for such patients as have been discharged from tuberculosis hospitals and sanatoriums recognized by the State, being, however, still unable to perform their usual work without risking a relapse.

6. *Nursing-homes for persons suffering from phthisis,* which in this Act shall mean nursing-homes under medical inspection for such persons suffering from pulmonary tuberculosis as are able to work and for whom a stay at a sanatorium or hospital cannot be considered necessary.

Sec. 3.

To obtain recognition by the State a seaside hospital or public sanatorium shall have room for at least 20 patients, a seaside sanatorium or a tuberculosis hospital or a convalescent home for at least 10, and a nursing-home for at least 5 patients, and the charges per day for each patient shall not—including State and municipal grants—exceed kr. 2 at seaside hospitals, kr. 1.20 at seaside sanatoriums, kr. 3 for adults and kr. 2 for children at public sanatoriums, kr. 2.50 for adults and kr. 1.66 for children at tuberculosis hospitals, and kr. 1.20 at convalescent and nursing-homes.

Sec. 4.

Until the revision, mentioned in Sec. 11 of this Act, has taken place, hospital wards (Sec. 2, paragraph 4), established in the buildings of public hospitals existing at the time of the taking effect of this Act, shall be entitled to State recognition as tuberculosis hospitals on the conditions mentioned in Section 1. These wards shall have a separate entrance and shall be strictly isolated from the other parts of the hospital in question and shall have room for at least 6 patients.

Sec. 5.

According to regulations issued by the Ministry of Justice and within the limits fixed by the provisions of Section 9, government subsidies shall be granted to the hospitals, convalescent homes, and nursing-homes, recognized by the State, mentioned in Sections 2 and 4, to an amount of kr. 1.50 per day for each of the patients mentioned in Section 6 at seaside hospitals, 90 øre at seaside sanatoriums, kr. 2.25 for adults and kr. 1.50 for children at public sanatoriums, kr. 1.85 for adults and kr. 1.25 for children at tuberculosis hospitals, and 90 øre at convalescent and nursing-homes.

No patient staying at a convalescent home shall be entitled to State support for any period exceeding two months.

Sec. 6.

Patients who are members of sick-clubs recognized by the State, and their children under fifteen, or whose economic situation is such that they or their maintainers according to Sec. 6 of the Act of April 12, 1892, regarding recognized sick-clubs, may become members of a recognized sick-club, as well as patients who are so situated that they or their maintainers are unable to afford the expenses of treatment in one of the institutions mentioned in Sections 2 and 4, shall be entitled to State support according to Sec. 5. No patient who is not a native of Denmark or naturalized or who has not been domiciled in Denmark during the last year before his admittance to one of the said institutions shall be entitled to State support.

Questions bearing on the right of patients, who are not members of recognized sick-clubs, to claim State support, shall be decided by the superior legal authorities, with right of recourse to the Ministry of Justice.

Sec. 7.

Government and municipal grants toward the support of necessitous tuberculous persons in institutions mentioned in this Act as well as toward their traveling expenses to and from the institution shall not be looked upon as poor relief. The same rule shall apply to government and municipal grants toward the support of families, whose maintainers are residing as patients in the said institutions.

Sec. 8.

Besides the patients who receive State support according to Sec. 6, such patients as without receiving State support declare themselves willing to pay for two months in advance or to find security for the payment of the charges mentioned in Sec. 3 shall in preference to others be entitled to admittance to the institutions mentioned in Sections 2 and 4, but only in case of their being so situated that neither they themselves nor their maintainers can afford to pay for treatment, in institutions where the charges are higher than those fixed in Sec. 3. Questions as to whether this condition may be said to exist shall be settled as appointed in Sec. 6, paragraph II.

If several patients, who according to the above-mentioned rule are entitled in preference to others to admission to institutions recognized by the State, present themselves for admission at the same time, the selection shall be made according to the same rules as would apply to a selection among patients living under the same economic conditions.

Sec. 9.

Every year the Rigsdag (Parliament), on the recommendation of the Committee of Ways and Means, shall decide how great a subsidy is to be granted by the State toward the treatment of patients in each of the hospitals and nursing-homes mentioned in Sections 2 and 4.

A sum of 100,000 kr. shall be placed at the disposal of the Minister of Justice for the fiscal year 1905–06, and for each of the succeeding four fiscal years toward the erection and extension of tuberculosis hospitals, and any part of the sum that is not spent in one fiscal year may be carried over to the next.

Of the said sum, a subsidy not exceeding 1250 kr. per bed shall be granted toward the erection and fitting-up of the building in question, not including, however, the sum paid for the site, as half of the expenses for each patient, for whom there is to be accommodation in the hospital in question or in the extension of the same, provided that detailed plans and estimates be submitted to and accepted by the Ministry of Justice before the beginning of the erection or extension of the building. The aforesaid sum of 1250 kr. shall be increased or diminished proportionally to any considerable rise or fall of prices of building materials and workmens' wages. If a tuberculosis hospital in receipt of a subsidy from the State should be used for any other purpose, the subsidy received shall be paid back to the State.

Every year the Rigsdag, on the recommendation of the Committee of Ways and Means, shall decide how great a subsidy is to be granted by the State toward the erection or extension of other hospitals for tuberculous persons.

Sec. 10.

Hospitals and nursing-homes which according to this Act have obtained State recognition are under the control of the Ministry of Justice, assisted by such persons as it may be found necessary to appoint for this purpose. Should the regulations issued by the Ministry of Justice not be carried out, the latter shall be entitled to deprive the hospital or nursing-home in question of the State recognition.

The expenses attendant on the control shall be paid by supplies granted every year by the Rigsdag on the recommendation of the Committee on Ways and Means.

Sec. 11.

This Act shall be laid before the Rigsdag for revision before the end of the year 1911.

The government shall be authorized to declare this Act in force by royal ordinance on the Faroe Islands, with such amendments as may be rendered necessary by the conditions peculiar to these islands.

As a result of these acts a very great number of sanatoriums, seaside hospitals, seaside sanatoriums, and tuberculosis hospitals have been built in all parts of the country; already existing institutions have been extended and improved and new ones are being erected or planned, so that Denmark in proportion to its size is now the country with the greatest number of hospitals for the treatment of tuberculosis, where patients may be treated at a practically nominal cost.

Public Sanatoriums Recognized by the State.

1. *Boserup Sanatorium.*—The Boserup Forest sanatorium was built at the expense of the municipality of Copenhagen and was opened in the spring of 1901. The sanatorium is situated in the southwestern part of Boserup Forest, about 6 kilom. from Roskilde, and covers with its surrounding grounds about 80 acres of land, formerly part of the forest. There are two separate buildings, one for either sex, with room for, in all, 152 patients (17 in private rooms and 135 in common wards). The cost of the erection of the sanatorium amounted to about 550,000 kr.; the cost of the fitting up, to about 100,000 kr.; in all, about 650,000 kr.

Only such patients as have been domiciled in Copenhagen for at least one year and are entitled to parish relief there, and who suffer from phthisis (pulmonary tuberculosis) in the early stages, are admitted to this sanatorium. The charges are kr. 3.00 per day for adults and kr. 2.00 for children. Patients who receive State support pay only kr. 0.75 for adults and kr. 0.50 for children. For patients who are members of sick-clubs recognized by the State and their children the charges are respectively kr. 0.60 and kr. 0.30 per day during the first thirteen weeks, after which time they are treated gratis for thirteen weeks, thus alternating between paying and gratis periods

of thirteen weeks as long as their expenses are borne by the sick-club to which they belong.

2. *The Lille-Strandvej Hellerup Consumption Sanatorium* is a public sanatorium recognized by the State, with 20 beds, chiefly admitting patients who are members of sick-clubs and necessitous persons. The sanatorium is situated at Hellerup, in the immediate vicinity of Copenhagen.

The Sanatoriums of the National Association.

1. *Silkeborg Sanatorium.*—Silkeborg Sanatorium is the largest sanatorium of Denmark, having room for 173 patients. The sanatorium is very beautifully situated, about 2 kilom. from Silkeborg, near the lakes Brassø and Vejlsø. The park and the gardens cover 40 acres of land, formerly part of the adjoining forest, much of which is thrown open to the sanatorium patients by permission of the State. The sanatorium was built 1902–03, after the block-system. The expenses of the erection of this sanatorium, amounting to about 482,098 kr., or about 2792 kr. per bed, were defrayed by the National Association. Only men are admitted.

2. *Ry Sanatorium* was built in the year 1903. It stands in a beautiful plantation of pine trees, about 2 kilom. from Ry station, and there are besides 27 acres of land belonging to it, bounded on the west by the River Gudenaa, which here has a considerable width. Only women are admitted. The sanatorium has room for 38 patients, and the cost of the erection amounted to 102,624 kr., or about 2700 kr. per bed.

3. *Haslev Sanatorium* stands on the outskirts of the beautiful forests belonging to the estate of Bregentved, about 3 kilom. from the town of Haslev, on a site presented by Count Moltke-Bregentved. The sanatorium was built in 1903 and has room for 24 patients. Only women are admitted. The cost of the erection amounted to 95,520 kr., or about 3980 kr. per bed.

4. *Skorping Sanatorium* was built in 1905–06. It stands in the large Rold-Forest near the country town of Skørping, in the north of Jutland, and has room for 123 patients. Only women are admitted. The cost of the erection amounted to 500,634 kr., or about 4070 kr. per bed.

5. *Nakkebolle Sanatorium*, on the Nakkebølle fiord, was built 1907–08. It is beautifully situated in a wood close to the sea, near the country town of Pejrup, about 10 kilom. from the town of Faaborg. It has room for 122 patients. Only women are admitted. The cost of the erection of this sanatorium was 600,000 kr., or about 5000 kr. per bed.

Sanatoriums of the Coöperative Sanatorium Association.

1. *Krabbesholm Sanatorium* was built in 1906. It stands at Skive fiord, near the old manor house of Krabbesholm, about 3 kilom. from the town of Skive in Jutland. About 67 acres of the woods belonging to the manor

house have been bought by the sanatorium for the purpose of laying out a park and garden. The sanatorium has room for 114 patients of either sex. The cost of the erection amounted to 400,000 kr., or 3410 kr. per bed.

2. *Faksinge Sanatorium* was built 1906–07. It stands in the beautiful Faksinge Forest, near the little creek "Even," running inland from Praestö Bay, about 4 kilom. from the town of Praestö, in Sealand. The park and garden of the sanatorium cover about 80 acres of land, formerly part of the forest. The sanatorium, which is provisionally carried on by the National Association, has room for 120 patients. Only men are admitted. The cost of the erection was 600,000 kr., or about 5000 kr. per bed.

The charges at these public sanatoriums, recognized by the State, are per day for adults 3 kr. and for children 2 kr., of which three-fourths are paid by the State in the case of members of sick-clubs, necessitous persons, and persons whose economic condition is not such as will enable them to pay the expenses of a stay at a sanatorium out of their own means.

There is room in the above-named public sanatoriums for about 900 (886) patients in all. When two more sanatoriums, one at Thorshavn in the Faroe Islands with 20 beds, and the Sct. Joseph Sister's Sanatorium at Esbjerg, with 70 beds, which are in course of erection, are finished, Denmark will have public sanatoriums recognized by the State, capable of accommodating about 1000 patients, where necessitous persons may be treated for 75 øre per day for adults and 50 øre per day for children.

In addition to these, there is a great number of private sanatoriums, where the charges are also very moderate.

Private Sanatoriums.

Vejlefiord Sanatorium, which is the oldest of the more important sanatoriums of Denmark, was opened in March, 1900. Its erection is chiefly due to the energetic efforts of Professor Saugmann, the present medical superintendent of the sanatorium. In 1895 he gave a lecture by which he succeeded in interesting the Danish Medical Association so much in his plan that they subscribed a sum of 1000 kr.; Danish medical practitioners subscribed 43,000 kr.; contributions to an amount of 200,000 kr. were received from private persons, and in 1896–97 the Rigsdag, on the recommendation of the Committee of Ways and Means, granted a subsidy of 100,000 kr. as a present toward the erection of the sanatorium. A site of 111 acres of land was then bought at Fakkegrav near Vejlefiord, where the sanatorium was built.

The sanatorium is the property of the company "Consumption Sanatoriums," and receives patients of the well-to-do classes from all parts of Denmark. Children under ten years of age are received only when accompanied by adults. Both men and women are admitted, and there is room for, in all, 95 patients. The charges are 7 to 8 kr. per day for private rooms and

6 kr. 50 øre per day when two patients share a room. There are 61 private rooms and 17 two-bedded rooms.

Persons who cannot afford, out of their own means, to pay the charges of the sanatorium are by bequests and support from the State enabled to stay at the sanatorium at a moderate cost.

The expenses of the erection, including the sum paid for the site and the fitting-up of the sanatorium, amounted to 785,500 kr., or about 8500 kr. per bed.

The annual working expenses amount to about 225,000 kr. The expenses for each patient amount to about 6 kr. 85 øre per day.

Helsebo Sanatorium near Odense was built in 1896 at the expense of the Copenhagen Deaconesses' Institution.

The institution was first intended for a "recreation home," but by and by patients suffering from tuberculosis in its early stages were also received. Since 1903 none but persons suffering from phthisis have been treated here.

The sanatorium is situated 4 kilom. from Odense, in a wood of 53 acres, sheltered from the north and west winds. There is room for 18 patients of either sex. The charges are 2 kr. 75 øre for a private room, for a bed in the common ward 2 kr. 25 øre per day.

The cost of the erection, not including the sum paid for the site, amounted to about 40,000 kr., or 2200 kr. per bed.

Dalum Kloster Sanatorium was established in the old Dalum Kloster (convent) in the vicinity of Odense, at the expense of the St. Hedvig Sisters. Only women suffering from tuberculosis in all stages are admitted. There is room for 35 patients. The charges vary from 3 kr. 50 øre to 5 kr. per day; patients are, however, sometimes received at reduced charges.

Dr. Bang's Private Sanatorium near Silkeborg was built in 1905, with room for 20 patients. The charges vary from 4 kr. 50 øre to 6 kr. per day.

The Consumption Sanatorium "Oresundshoj" at Ordrup near Copenhagen, with room for 14 patients, receives persons suffering from phthisis in its early stages. The charges are 4 kr. 50 øre for a private room, 3 kr. for a bed in the common ward.

The Hellerup Consumption Sanatorium at Hellerup, near Copenhagen was built in 1899, with room for 12 patients, and receives persons suffering from phthisis in its early stages. The charges vary from 4 to 6 kr. per day.

The Sanatorium "Solbad," in the parish of Sölleröd, about 15 kilom. from Copenhagen, with room for 18 patients, receives persons suffering from light forms of tuberculosis and patients to whom the country air is necessary for a complete cure. The charges vary from 4 kr. 50 øre to 5 kr. per day.

The Sanatorium "Bakkely," near the town of Kallundborg, with room for 24 patients, receives persons suffering from tuberculosis and scrofulous

diseases. The charges are 2 kr. 50 øre per day. The sanatorium is partly supported by the State and partly by the county of Holbaek.

The Sanatorium "Skovbrynet," at Fakkegrav, near Damgaard railway-station, has room for 12 patients. The charges vary from 4 kr. to 4 kr. 50 øre per day.

The "Ronde" Sanatorium near Kalövig in Jutland, receives only women. There are 12 beds in all, 8 for women suffering from phthisis in its early stages, 4 for convalescents. The charges vary from 100 kr. to 110 kr. per month.

Besides the above-named private sanatoriums with, in all, 260 beds for patients of the well-to-do classes, there are some private nursing-homes for persons suffering from tuberculosis.

Tuberculosis Hospitals.

A great number are finished, while some are in course of erection and others only planned.

Sealand.—Copenhagen: at the Øresunds Hospital is a tuberculosis ward containing 200 beds; at Frederiksberg Hospital, a ward containing 52 beds; at Roskilde Hospital, a ward containing 12 beds; at Lyngby Hospital, a ward containing 24 beds; at Faxe Hospital, a ward containing 7 beds; in all, 295 beds.

At Naestved Hospital there is, besides, planned a ward containing 24 beds; at Vordingborg Hospital, a ward containing 12 beds; at Holbaek Hospital, a ward containing 24 beds; in all, 60 beds.

Bornholm.—At Rønne is a tuberculosis hospital containing 36 beds.

Lolland Falster.—As a provisional arrangement 20 beds of the epidemic hospital at Nakskov are reserved for patients suffering from tuberculosis. At Maribo a hospital containing 40 beds is planned.

Funen.—At Svendborg is a tuberculosis hospital containing 33 beds; at Assens a tuberculosis hospital containing 20 beds; in all, 53 beds.

At Odense Hospital there is, besides, planned a ward containing 48 beds; at Nyborg Hospital, a ward containing 10 beds; in all, 58 beds.

Jutland.—Tuberculosis hospitals in Jutland, finished or in course of erection:

Location of Hospital.	Number of Beds.
Hjorring	22
Aalborg	20
Ebeltoft	26
Horsens	18
Kolding	24
Hornsyld	12
Give	16
Ringkjobing	12
Holstebro	26
Tarm	10
Ribe	20
Esbjerg	20
Total	226

Hospitals planned:

Location of Hospital.	Number of Beds.
Aalborg	26
Logstor	10
Brouste	12
Frederikshavn	10
Thisted	18
Nykjobing	16
Koldby	10
Hvidbjerg	10
Fjerritslev	10
Vestervig	10
Odder	25
Braestrup	12
Vejle	24
Herning	10
Esbjerg	15
Total	218

The Faroe Islands.—At the tuberculosis hospital at Thorshavn in the Faroe Islands there is room for 30 patients, 10 of which are treated as hospital cases, 20 as sanatorium cases.

Children's Sanatoriums.

1. *The Refsnaes Seaside Hospital.*—This hospital, the oldest hospital of Denmark for the treatment of tuberculosis, was opened July 1, 1875, for scrofulous children from all parts of Denmark from the age of four or five, and besides for rachitic children from the age of two. There is room in the hospital for 130 children, and in the epidemic ward for 10. The charges are 2 kr. per day. Some children are received for 1 kr. per day and some quite gratis. Sums of money to the amount of 118,000 kr. have been bequeathed to the hospital by various persons.

The hospital stands on the south side of the headland of Refsnaes, about 2 kilom. from the town of Kallundborg, quite near the sea, and open to the south, while sheltered on the three other sides by high hills. It was erected by means of private subscriptions, and has later received government and municipal grants to a considerable amount, besides being largely supported by charitable institutions.

Since the hospital was opened it has repeatedly been improved and partly rebuilt. On December 31, 1906, the cost of the buildings and fittings amounted to 340,000 kr.

During the last four years the average expenses amounted to about 100,000 kr. yearly, or about 2 kr. 14 øre per day for each patient, and during the same period the average number of days of treatment of each patient discharged from the hospital was 412.

Results of the Treatment of Tuberculous and Scrofulous Patients Discharged During the Years 1875–1906 (Incl.) According to the Opinion of the Medical Superintendent at the Time of Their Discharge from the Hospital.

Number of Patients Discharged 1875–1906.	Class of Disease.	Number of Patients.			
		I. Cured.	II. Much Improved.	III. Improved.	IV. Unchanged or Worse.
909.....	I.	542	294	65	8
1013.....	II.	576	357	55	25
1130.....	III.	681	241	67	141
204.....	IV.	38	79	26	60
3256.....	....	1837	971	213	234

2. *The Juelsminde Seaside Hospital* admits children between four and fifteen, suffering from scrofulous and tuberculous diseases (pulmonary tuberculosis not included).

The hospital stands on a headland near the mouth of Vejlefiord and the Cattegat, about 2 kilom. from Juelsminde railway station; there are about 17 acres of land, most of which is laid out as a park, and a sandy and sloping beach, well adapted for bathing purposes.

The hospital is an independent philanthropical institution. It was erected 1901–02, partly by means of municipal grants and private subscriptions, partly by a government grant of 55,000 kr. The cost of the site, buildings, and fittings amounted to 112,000 kr., and there is room for 52 children.

In 1907–08, partly by means of government grants, two pavilions with room for 48 patients were added, so that the total amount expended is now 185,000 kr., or 1850 kr. per bed.

The hospital is open all the year round and the term of treatment is unlimited, *i. e.*, the children are not discharged until they are quite cured or until it is seen that they are not further benefited by their stay at the hospital.

The charges are 2 kr. pr. day. In accordance with the act regulating State subsidies to tuberculosis hospitals, as well as the treatment of patients at the same, 1 kr. 50 øre is paid by the State per day for such patients as fulfil the conditions mentioned in Sec. 6 of the said act, so that only 50 øre per day remains to be paid by the patients themselves.

During the last years the average term of treatment has been 280 days, and up till now about 60 children have been discharged yearly, 90 per cent. as cured or much improved, 10 per cent. without having benefited by the treatment.

The treatment is hygienic-dietetic. In summer the children bathe in the sea; in winter they have warm salt-water baths. When necessary, the

general treatment is assisted by conservative surgical and orthopedic local treatment.

3. *The Hellebaek Seaside Sanatorium* belongs to the society "The Copenhagen and Environs Children's Sanatoriums," whose object is to send delicate, especially tuberculous, children of the poor classes to a seaside sanatorium for gratis treatment of varying duration.

In 1895 the society bought a site north of Hellebaek, where a sanatorium with room for 35 children was built in 1896. The cost of the erection, including 6000 kr. paid for the site, amounted to 22,000 kr.

By means of a State subsidy of 42,000 kr. granted in the winter 1903, and several other grants—for instance, in 1906–07, 25,000 kr.—the sanatorium is now able to receive from 70 to 75 patients.

The total amount of the cost of erection is at present 60,000 kr., or 900 kr. per bed.

The society has from the time of its establishment provided treatment for the following number of children between the ages of four and fourteen:

	1890–95.	1896–1903.	1904–07.	1907.
Children	658	1,522	823	199
Days of treatment....	18,564	54,925	70,932	19,251

The expenses of the treatment amount to about 1 kr. per day.

From 1890 till the end of the year 1907 the society has spent about 217,000 kr., for the greater part collected by private subscriptions. Since 1906 the sanatorium has received a State subsidy of 90 øre per day for the treatment of scrofulous children (Act of April 14, 1905).

4. *The Seaside Sanatorium "Buddesminde" for Girls* stands on the outskirts of the Tofte Forest, near Sandbjaergvej, about 1 kilom. from Juelsminde railway station. A garden of 1 acre belongs to the sanatorium. It is the property of the "Danish Children's Homes Society," and has room for 16 girls between four and fifteen, suffering from light forms of phthisis (pulmonary tuberculosis). The sanatorium was opened in 1904. The charges are 1 kr. 20 øre per day, three-fourths of which are paid by the State in the case of the children of necessitous persons and of members of sick-clubs.

The term of treatment extends over about 120 days, and about 30 children have been discharged yearly, about 80 per cent. relatively cured or improved, about 20 per cent. with no result.

5. *"Buddesminde" for Boys.*—This sanatorium was also built at the expense of "Danish Children's Homes Society," and was opened in August, 1906. It stands in a very sheltered position on the southern outskirts of a forest of 133 acres, about 2 kilom. from Mørkøv railway station. A park of about 4 acres belongs to the sanatorium. The soil is dry and sandy. There are two separate buildings, and in the park are specially constructed

tents or sheds, where the patients may lie exposed to the open air. The sanatorium is recognized by the State. There is room for 16 boys between four and fifteen. Mostly children of necessitous parents are admitted, if they suffer from light forms of phthisis in the early stages; sometimes, however, children in the later stages of the disease are also admitted, provided they are well enough to be up. The charges are 1 kr. 20 øre per day.

The treatment consists of exercise in the open air, alternating with intervals of lying in specially constructed tents or sheds exposed to the air.

6. *The Children's Sanatorium at Snogebaek on Bornholm* is situated on the southeastern coast of the island of Bornholm. Properly speaking, it is not a sanatorium, but simply a fishing village, where scrofulous children are sent through the agency of the municipality of Copenhagen. The latter has hired a strip of ground on the beach and put up two "Dœcker" tents for the accommodation of the children, who are boarded out to the inhabitants of the village for a period of three months. The expenses of medical attendance, medicine, and nursing—65 øre per day—are paid by the municipality of Copenhagen. Since the establishment of this institution in 1876 about 2000 children have been treated here with excellent results.

7. *The Home for Scrofulous Children at Odder* was started by the "Aarhus County Nursing and Children's Hospitals Society." The house stands in a big garden, surrounded by fields and woods. The children bathe in the sea near Hou, to which place they are conveyed by railway (gratis). There is a hospital with 20 beds, where scrofulous children are received. The charges are 30 øre per day, or about 180 kr. yearly. Subsidies from the State and the County of respectively 500 and 200 kr. yearly are granted.

Besides the above-named seaside hospitals and seaside sanatoriums with room for about 400 scrofulous and tuberculous children of necessitous parents, a large sanatorium for the treatment of poor children suffering from pulmonary tuberculosis is being built, viz.—

8. *The "Christmas Stamp" Sanatorium.*—On October 26, 1904, a committee was formed with the object of building a hospital for tuberculous children and to raise the necessary funds by issuing a stamp bearing the king's portrait. It was to be sold at a price of 2 øre and affixed to letters, especially at Christmas time. The first year 6 million stamps were issued, 5¼ million of which were sold, fetching a sum of 75,000 kr., and the committee continuing the issue of the Christmas stamp, a similar sum has been collected each succeeding year. After the necessary sum had been raised,—partly by the help of a Government grant,—the committee resolved to build a sanatorium of 121 beds for tuberculous children, and a very fine and suitable site on Kolding fiord was bought. When the sanatorium, which is at present in course of erection, is finished, it will be managed by the National Association for the Combating of Tuberculosis.

ACCOMMODATION FOR PATIENTS AT SANATORIUMS IN PROPORTION TO THE POPULATION OF DENMARK.

According to the last census Denmark has a population of:

Sealand	1,026,119
Bornholm	41,031
Lolland-Falster	108,029
Funen	289,046
Jutland	1,124,684
In all	2,588,919
The Faroe Islands	16,349

There are at present public sanatoriums recognized by the State accommodating about 1000 patients.

The total amount of the cost of erection of these sanatoriums is about 3,466,800 kr.

There are private sanatoriums, several of which receive patients at reduced charges, accommodating 260 patients.

In tuberculosis hospitals recognized by the State, the cost of erection of which amounts to 1,650,000 kr., there will soon be accomodation for 660 patients, and when the hospitals that have been planned are finished, there will be accommodation for 376 more.

Children's seaside hospitals and children's seaside sanatoriums recognized by the State, including the "Christmas stamp" sanatorium, which is at present in course of erection, accommodate in all 500 patients. The cost of erection of these hospitals and sanatoriums amounts to 1,260,000 kr.

It will thus be seen that Denmark, with a population of two and one-half millions, has accommodation at present for, in all, 2180 patients of the poorer classes at the various sanatoriums, tuberculosis hospitals, seaside hospitals, and seaside sanatoriums. The total amount expended on these institutions is estimated at 6,376,800 kr.

Medidas contra la Tuberculosis en Dinamarca.—(RÖRDAM.)

La tuberculosis no es especialmente prevalente en Dinamarca. La mortalidad de la tuberculosis pulmonar es de 1.5 por cada 1,000; y de todas las formas de la tuberculosis es de 2.0 por 1,000. La mortalidad á consecuencia de la tuberculosis pulmonar esta disminuyendo rapidamente; en 1876 la proporción de los casos fatales fue de 3.57 por 1,000, mientras que al presente es de 1.95 por 1,000 solamente. La tuberculosis ha sido activamente combatida en Dinamarca. Desde 1875 se construyo el primer hospital à las orillas del mar para los niños escrofulosos, el Hospital Refnaes, que puede acomodar á 130 pacientes. Desde esa fecha numerosos hospitales

se han construido á la orilla del mar, sanatorios y hospitales para tuberculosos, en donde el pobre recibe el tratamiento gratis ó parcialmente gratis.

Ademas de estas agencias, dedicadas á la cura de la tuberculosis, muches medidas preventivas tambien se han tomado. En 1.898 la Sociedad Medica Danesa publicó, por cuenta del Estado, unas pequeñas circulares sobre la tuberculosis, de los cuales se distribursieron 600,000 copias, mientras que ligeras instrucciones sobre la prevención de la tuberculosis se colgaron en todos los edificios publicos y en un numero de los privados también.

Ultimamente se han hecho numerosas leyes, las cuales directa ó indirectamente se relacionan con la prevención de la tuberculosis.

Las leyes sobre la tuberculosis del 14 de Abril de 1905, proveé la notificación obligatoria de todos los casos de tuberculosis pulmonar y tuberculosis de la laringe, desinfeccion de las casas después de la muerte del paciente, lo mismo que cuandó éste cambio de residencia. En el caso de que una persona tuberculosa falte en la observacion de los mandatos del Comisionado de Salud, esta será confinada á un hospital á cuenta del Estado.

De acuerdo con la circular publicada por el Ministro de los Trabajos Púbilcos, el escupir en los trenes, barcos, staciones, etc., es prohibido. Leyes y reglamentos se han hecho por medio de los cuales la venta de carnes, leche y otros productos de la alimentacion esta extrictamente bajo supervigilancia.

Cada doctor puede enviar el esputo por el examen del bacilo de la tuberculosis á cuenta del público.

Reglamentos han sido introducidos con relacion á la inspección de las factorias y talleres en cuanto á los arreglos sanitarios y condiciones de estos, los cuales prohiben el empleo de niños: Tambien leyes que regularizan el empleo de personas jóvenes y sus horas de trabajo.

De acuerdo á los estatutos y circulares del ministro de la Educatión, las escuelas privadas y publicas deben ser usadas solamente para los trabajos escolasticos, y leyes se han hecho para regularizar el arreglo exterior y interior, sanitación y limpieza.

Los niños que viven bajo ciertas condiciones desfavorables, que su salud esta en peligro, la ley tiene derecho á quitarlos del poder de sus padres y cuidar de ellos a cuenta del público.

De acuerdo con la ley del 14 de Abril, 1908, los niños estan protejidos desde su tierna infancia, a las personas tuberculosas no se les permite cuidar de ellos en calidad de enfermeras ó nodrizas. Los niños tuberculosos deben ser introducidos en las enfermarias, ni los alumnos deben tener contacto con los niños tuberculosos. Asilos y escuelas estan sujetos á la inspección de la Comision de Salud.

Personas jóvenes que intentan entrar en una factoría, deben primaramente presentar un certificado del médico al efecto de que no padesen de

tuberculosis. Cualqier conscripto que se encuentra afectado de tuberculosis durante su termino de servicio, tiene derecho al tratamiento en un sanatorio a cuenta del Estado.

De acuerdo con la ley, el estado suple las tres cuartas partes de los gastos del tratamiento y cuido de los pobres en los sanatorios públicos reconocidos, y ademas contribuye extensamente en la construcción de sanatorios y hospitales para tuberculosos.

Dinamarca, con una población de 2,500,000, tiene al presente sanatorios públicos en los cuales se puede acomodar a 1,000 personas, la construcción de estas instituciones cuestan 3,500,000 coronas. Sanatorios privados para la clase rica de la población pueden acomodar 250 personas. Los hospitales para tuberculosos pueden acomodar 660 personas, estos son mantenidos poe el Estado y se han gastado 1,600,000 coronas en la construcción de ellos. Hospitales capaces de acomodar 400 personas estan en construcción.

Hospitales á las orillas del mar, para los niños pobres, pueden acomodar cerca de 1,500 niños y la construcción de estos cuestan 1,300,000 coronas.

El total gastado en la construcción de establecimientos de salud para los tuberculosos de la clase pobre es cerca de 6,300,000 coronas.

La asistencia que se les da a los pacientes tuberculosos de la clase pobre no es mirada como socorro de pobres.

Ademas, muchas asociaciones se han fundado en Dinamarca con el objeto de enviar á las personas tuberculosos al campo por un tiempo prolongado, de ayudar á los niños pobres, de promover la construcción de habitaciones para los obreros.

Massnahmen zur Ausrottung der Tuberkulose in Dänemark.—(RÖRDAM.)

Die Tuberkulose ist in Dänemark nicht besonders verbreitet. Die jährliche Mortalitätsrate in Folge von Lungentuberkulose ist 1.5 per Mille; von sämmtlichen Abarten der Tuberkulose 2.0 per Mille. Die Mortalitätsziffer nach Lungentuberkulose ist in rapider Abnahme begriffen; im Jahre 1876 betrug der Perzentsatz der Todesfälle 3.57 per Mille; während die Proportion gegenwärtig blos 1.95 per Mille erreicht. Die Tuberkulose wird in Dänemark seit langem energisch bekämpft. Schon im Jahre 1875 wurde das erste Marine-Hospital für skrofulöse Kinder das Refsnaes Marine-Hospital mit Raum für 130 Kinder errichtet. Seither wurden zahlreiche Marine-Hospitäler und Sanatorien, sowie Tuberkulose-Hospitäler und Sanatoriem gegründet, in denen Unbemittelte kostenlos oder für geringe Bezahlung gepflegt werden.

Diesen Institutionen, die Heilung der tuberkulösen Kranken bezwecken,

reihen sich zahlreiche Präventiv-Massnahmen an. Im Jahre 1898 publizirte die Dänische Ärzte-Gesellschaft auf Staatskosten eine kurze Abhandlung über Tuberkulose, die in 600,000 Exemplaren vertheilt wurde; ausserdem wurden an sämmtlichen öffentlichen Anstalten, sowie an zahlreichen Privatgebäuden kurze Instructionen zur Verhütung der Tuberkulose affichirt.

Späterhin wurden Gesetze geschaffen, die durch ihre Massnahmen insgesammt direkt oder indirekt die Verhütung der Tuberkulose bezweckten.

Das Tuberkulose-Gesetz vom 14 April, 1905, bestimmt die obligatorische Anzeige sämmtlicher Fälle von Lungen- und Kehlkopftuberkulose, die obligatorische Desinfection nach jedem Todesfalle in Folge von Tuberkulose, sowie Desinfektion, wenn vom Arzte verfügt, nach jedem Wohnungswechsel eines Tuberkulösen. Im Falle Nichtbefolgung der Vorschriften der Gesundheits Commission kann der Kranke auf öffentliche Kosten in ein Krankenhaus untergebracht werden.

Laut einem Erlasse des Ministers für öffentliche Arbeiten ist das Expectoriren in Eisenbahnwaggons, Schiffen, Stationen u. s. w. verboten. Gesetze und Vorschriften stellen den Verkauf von Fleisch, Milch, und anderen Nahrungsartikel unter strenge Aufsicht.

Aerzte haben das Recht, das Sputum ihrer Kranken kostenfrei auf Tuberkelbazillen untersuchen zu lassen.

Es sind Verfügungen getroffen worden, laut denen Fabriken und Werkstätten auf ihre Gesundheitszustände untersucht werden; andere verbieten die Beschäftigung von Kindern; auch bestehen Gesetze, welche das Anstellen von jungen Personen und deren Arbeitszeit reguliren.

Laut Bestimmungen des Unterrichtsministers können öffentliche sowohl als Privatschulen blos zu Unterrichtszwecken benützt werden; einschlägige Vorschriften sorgen für deren innere und äussere Ausstattung, Lage und Reinhaltung.

Kinder, die unter sanitätswidrigen Verhältnissen leben, können behördlich aus dem Elternhause entfernts und auf öffentliche Kosten erzogen werden.

Das Tuberkulose-Gesetz vom 14 April, 1905, beschützt die Kinder schon vom zarterben Alter an, indem es tuberkulösen Personen verbietet, Ammendienste zu leisten. Tuberkulöse Kinder dürfen in Säuge-Anstalten nicht aufgenommen werden und Nährlinge dürfen nicht mit tuberkulösen Kindern in Berührung kommen.

Asyle und Schulen sind der Aufsicht der Gesundheits-Commission unterworfen. Tuberkulöse Kinder werden in den öffentlichen Schulen nicht zugelassen; Lehrer, die an Tuberkulose leiden und Infektion verbreiten können, werden mit Pension entlassen.

Junge Leute, die sich in den Fabriken um Arbeit bewerben, müssen

ein ärztliches Attest vorweisen, das sie von Tuberkulose freispricht. Rekruten, die während ihrer Dienstzeit an Tuberkulose erkranken, können Behandlung in einem Sanatorium auf Staatskosten beanspruchen.

Laut demselben Gesetze trägt der Staat drei Viertel der Ausgaben, die mit der Behandlung und Pflege der Armen in anerkannten öffentlichen Sanatorien verbunden sind und hat des weiteren reichlich zur Errichtung von Sanatorien und Tuberkulose Hospitälernbeigetragen.

Dänemark, mit einer Population von 2,500,000 Inwohnern, besitzt gegenwärtig öffentliche Sanatorien, die 1000 Patienten zu versorgen im Stande sind und deren Errichtung 3½ Millionen Kronen gekostet hat. Privat-Sanatorien für die bemittelte Klasse haben Raum für weitere 250 Patienten. Die Tuberkulose-Hospitäler, mit Accommodation für 660 Kranke, werden vom Staate erhalten und werden mit einem Kostenaufwande von 1,600,000 Kronen erbaut. Auch sind gegenwärtig Hospitäler zur Aufnahme von weiteren 400 Patienten im Bau ergriffen.

Die Marine-Hospitäler haben Raum für ungefähr 1500 arme Kinder; ihre Errichtung kostete 1,300,000 Kronen.

Der Gesammtbetrag, der auf die Errichtung vom Sanitatsanstalten für Tuberkulotiker der ärmeren Klasse verausgabt wurde, beläuft sich auf 6,300,000 Kronen.

Die den Tuberkulotikern der ärmeren Klasse zukommende Beihilfe wird nicht als Krankenunterstützung betrachtet.

Neben all diesen Institutionen bestehen in Dänemark zahlreiche Gesellschaften, durch deren Beistand Tuberkulotikern ein längern Landauenthalt ermöglicht wird, arme Kinder unterstützt werden, die Errichtung entsprechender Arbeiterwohnungen angestrebt wird und die auf verschiedenen anderen Wegen die Tuberkulose zu bekämpfen suchen.

Kurz, Dänemark ist zweifellos eines jener Länder, in denen der Kampf gegen die Tuberkulose mit aller Energie geführt wird.

The paper by Dr. B. Patrikios, Secretary of the Superior Board of Health, of Greece, was presented by His Excellency, Mr. Coromilas, the Grecian Minister. In presenting the paper His Excellency remarked that his government hoped to hold a national congress against tuberculosis next year, and that he and his government anticipated invaluable aid from the reports of this International Congress.

LA LUTTE CONTRE LA TUBERCULOSE EN GRÈCE.

PAR LE DR. B. PATRIKIOS,

Membre et Secrétaire du Conseil Supérieur d'Hygiène de Grèce, Médecin-Directeur du Dispensaire Antituberculeux d'Athènes, etc.

I. MARCHE DE LA TUBERCULOSE EN GRÈCE DE 1890 À 1907 (ANNÉE COMPRISE).

En Grèce, le public croit, depuis les temps les plus reculés, à la propagation par contagion de la tuberculose et surtout tout particulièrement, à l'hérédité. Pourtant malgré toutes ces convictions populaires aucune attention n'est accordée même de nos jours au mode de transmission de la maladie et aux moyens de prophylaxie contre cette affection. Voilà pourquoi cette maladie se propage et se répand toujours de plus en plus. Aussi, sans remonter à des époques très anciennes, sur lesquelles les renseignements fournis par la statistique seraient peut-être contestables on trouvera ci-dessous trois tableaux qui font connaître, à partir de 1890, la progression toujours croissante, dans les grandes villes de la Grèce, de la mortalité due à la tuberculose. Ils sont dressés d'après les bulletins officiels du Ministère de l'Intérieur.

TABLEAU I.

MORTALITÉ DUE À LA TUBERCULOSE DES ORGANES RESPIRATOIRES ET AUTRES DANS NEUF VILLES DE LA GRÈCE PENDANT LES TROIS PÉRIODES QUINQUENNALES 1890–1894, 1895–1899, ET 1900–1904.

NOM DE LA VILLE.	MORTALITÉ PAR TUBERCULOSE DES ORGANES RESPIRATOIRES ET AUTRES.		
	I. Période quinquennale (de 1890 à 1894).	II. Période quinquennale (de 1895 à 1899).	III. Période quinquennale (de 1900 à 1904).
Athènes	2040	2461	3058
Patras	461	555	737
Corfou	189	217	588
Syra	534	557	575
Volo	131	196	272
Calamata	86	120	207
Larissa	106	83	209
Zante	60	122	199
Pyrgos	94	124	187
	3701	4435	6032

Note: Des douze villes sur lesquelles le bulletin du Ministère de l'Intérieur publie la satistique des décès on n'a pris en considération dans le tableau ci-dessus que neuf villes, car la statistique de la mortalité des trois autres villes (le Pirée, Trikkala, Tripolitza) étant sur quelques points imparfaite ne pourrait fournir de termes de comparaison à partir de 1890. Il faut savior que le Ministère de l'Intérieur ne publie que depuis 1899 un bulletin de statistique de la mortalité.

TABLEAU II.

MORTALITÉ DE LA TUBERCULOSE DES ORGANES RESPIRATOIRES ET AUTRES DE 1893 À 1907 DANS DIX VILLES DE LA GRÈCE D'APRÈS LES BULLETINS OFFICIELS DU MINISTÈRE DE L'INTERIEUR.

NOM DE LA VILLE.	POPULATION.		MORTALITÉ DE LA TUBERCULOSE DES ORGANES RESPIRATOIRES ET AUTRES.		
	D'après le Recensement de 1896.	D'après le Recensement de 1907.	I. Période quinquennale 1893 à 1897.	II. Période quinquennale 1898 à 1902.	III. Période quinquennale 1903 à 1907.
Athènes	122053	167479	2250	2896	3175
Le Pirée	51020	74580	797	968	1118
Patras	37985	37724	537	675	675
Corfou	29135	29032	195	435	587
Syra	18760	18132	535	585	540
Volo	16788	23563	168	244	301
Calamata	15956	15397	97	186	215
Larissa	15373	18001	68	168	238
Zante	14906	13580	71	194	157
Pyrgos	12708	13690	100	163	186
	334684	411178	4818	6514	7192

TABLEAU III.

MORTALITÉ DES MALADIES INFECTIEUSES ET DE LA TUBERCULOSE DES ORGANES RESPIRATOIRES ET AUTRES DE 1900 À 1907 DANS 12 VILLES DE LA GRÈCE.

NOM DE LA VILLE.	POPULATION.		MORTALITÉ DES MALADIES INFECTIEUSES DE 1900 À 1907.	MORTALITÉ DE LA TUBERCULOSE DES ORGANES RESPIRATOIRES DE 1900 À 1907.	MORTALITÉ DE LA TUBERCULOSE D'AUTRES ORGANES DE 1900 À 1907.	TOTAL DE LA MORTALITÉ DE LA TUBERCULOSE EN GÉNÉRAL DE 1900 À 1907.	MORTALITÉ DE DIFFÉRENTES MALADIES Y COMPRIS LA TUBERCULOSE DE 1900 À 1907.	SUR 100 DÉCÈS DE DIFFÉRENTES MALADIES SONT DUS À LA TUBERCULOSE.	TAUX ANNUEL DE LA TUBERCULOSE EN GÉNÉRAL PAR 10,000 HABITANTS.
	D'après le recensement de 1906.	D'après le recensement de 1907.*							
Athenes	122053	167479	3046	3682	1316	4998	28990	17,24	37,23
Le Pirée	51020	74580	1288	1284	655	1939	11447	16,94	32,50
Patras	37985	37724	1162	743	379	1122	7724	14,53	37,18
Corfou	29135	29032	445	702	229	931	5735	16,23	40,08
Syra	18760	18132	416	631	262	893	4831	18,48	61,56
Trikkala	21149	17809	685	292	97	389	3245	11,99	27,30
Volo	16788	23563	820	354	95	449	3993	11,24	23,85
Calamata	15956	15397	436	269	66	335	2690	12,45	27,28
Larissa	15373	18001	490	270	73	343	2811	12,20	23,83
Zante	14906	13580	266	213	71	284	2456	11,56	26,14
Pyrgos	12708	13690	549	196	100	296	2851	10,38	27,03
Tripolitza	10465	10789	246	94	37	131	1860	7,04	15,18
	366298	439776	9849	8730	3380	12110	78633	13,35	31,60

* Pour évaluer exactement l'augmentation de la population et par conséquent l'augmentation de la mortalité due à la tuberculose nous avons inscrit ci-dessus la population d'après les deux derniers recensements (1896 et 1907).

Des tableaux ci-dessus nous tirons les conclusions suivantes:

a. Que la mortalité due aux diverses formes de la tuberculose va constamment en croissant à partir de 1890 dans les grandes villes de la Grèce.

b. Que dans ces mêmes villes la mortalité due aux diverses formes de la tuberculose dépasse de beaucoup l'ensemble de la mortalité causée par toutes les autres maladies infectieuses.

c. Que le rapport entre la mortalité due à la tuberculose et la mortalité générale dans les grandes villes est de 15: 100 puisque sur 78,633 décès de diverses maladies y compris ceux dus à la tuberculose, il y a eu 12110 personnes qui ont succombé à cette seule maladie.

d. Que sur 10,000 habitants il y a en général 34 personnes par an qui meurent de la tuberculose.

Quant au rapport entre la mortalité générale et celle due à la tuberculose dans les diverses grandes villes il varie de 15 à 61 sur 10000 habitants.

e. Que sur 10,000 habitants meurent chaque année environ 25 personnes de tuberculose des voies respiratoires; et que selon le même rapport la tuberculose tue dans les autres villes de la Grèce plus de 9000 personnes par an en prenant en considération le recensement officiel de la population effectué en 1907 et d'après lequel la Grèce compte 2,631,952 habitants.

En se basant sur ce dernier recensement officiel (celui de 1907) on aurait tort d'attribuer l'augmentation de la mortalité due à la tuberculose à l'accroissement de la population vu que cet accroissement n'est pas considérable.

Dans une étude précédente on a fait savoir que la mortalité due à la tuberculose constatée dans l'armée hellénique est faible tandis que celle observée dans les asiles d'aliénés de la Grèce est supérieure à celle des asiles de France et que fort grande est aussi la morbidité et la mortalité dans les prisons helléniques.*

Par les faits exposés ci-dessus j'ai voulu fournir un tableau synoptique de la marche de la tuberculose en Grèce et montrer que les ravages causés par cette affection sont bien plus grands en Grèce qu'en Allemagne, Irlande, Suède et Suisse (20 sur 10000 habitants) ou en Angleterre, Belgique, Écosse, Hollande, Italie et Norvège (10 sur 10000 habitants)†, ou à New-York, Vienne et Paris.‡

II. Les causes sociales de la tuberculose en Grèce.

En Grèce on ne constate heureusement pas dans les classes pauvres le degré de misère et d'indigence observé dans les grandes villes populeuses des

* B. Patrikios: La Tuberculose en Grèce, Athènes 1903 pp. 45 et 69.
B. Patrikios: La marche de la tuberculose en Grèce, Athènes 1906 (texte grec) pp. 6–7.

† G. Daremberg: Les différentes formes cliniques et sociales de la tuberculose pulmonaire, Paris, 1905, p. 298.

‡ Armaingaud: Quelles sont les causes réelles de la décroissance progressive des décès, par tuberculose pulmonaire dans les vingt dernières années, à Berlin, Londres, New-York, Vienne et Paris? Académie de Médecine, séance du 7 Juillet, 1908.

autres Etats. Pourtant la propagation de la maladie en Grèce est due à une alimentation insuffisante dans les classes moyennes et surtout dans les classes inférieures, aux écoles construites contrairement à l'hygiène, aux bureaux publics malsains, aux établissements publics en général, aux hachoirs de tabacs, aux imprimeries, aux divers établissements industriels, aux prisons, aux mobilisations, à l'exode rural observé dans ces dernières années qui fait que les habitants des campagnes viennent s'établir dans les villes, à l'émigration pour l'Amérique, car nombre de ceux qui se sont expatriés reviennent tuberculeux et contaminent leurs familles qui jusqu'alors vivaient indemnes, et surtout au manque de mesures prophylactiques et à la non-désinfection des maisons où la maladie sévit.*

D'un autre côté la constante augmentation en Grèce de la syphilis toujours se propageant et de l'alcoolisme ainsi que l'insuffisance des mesures prises pour arrêter la propagation des maladies épidémiques qui prédisposent à la tuberculose telles la rougeole, l'influenza, la variole, la coqueluche, expliquent l'extension de la maladie.†

III. Fondation de la Ligue Panhellénique Antituberculeuse et début de la lutte contre la tuberculose en Grèce.—Initiative individuelle.—Sollicitude gouvernementale.—Législation hellénique.

Jusqu'en 1901 les ravages causés par la tuberculose n'avaient pas encore excité en Grèce l'attention du gouvernement et de l'opinion publique. La question fut mise à l'ordre du jour lors du Congrès Médical Panhellénique de 1901 à la suite des rapports lus et des communications faites. L'attention fut éveillée. Aussi dans l'intérêt du public et sur l'initiative de ce Congrès fut fondée la Ligue Panhellénique antituberculeuse. Cette association aussitôt formée considéra comme son premier devoir d'instruire le public de façon à le préparer à cette lutte, et procéda de suite à diverses publications qu'elle fit distribuer à plusieurs milliers d'exemplaires. Elle fit aussi des conférences populaires et s'occupa de créer en divers lieux des sous-comités.

En effet, ce fut ainsi qu'on éveilla l'attention et l'intérêt du public et qu'on lui fit connaître le danger qu'il courait à cause de cette maladie et par suite de sa propagation et il apprit que si la tuberculose est vraiment une maladie *transmissible* elle est évitable et curable. Une fois les préjugés populaires réellement extirpés la Ligue songea que la tuberculose en Grèce ne pouvait être combattue par les sanatoria pour des raisons purement économiques. Les sanatoria en Grèce ne peuvent servir que comme des établissements scolaires lesquels par leur action éducatrice et curative sont destinés à faire connaître la prophylaxie antituberculeuse.

* B. Zervéas: Compte-rendu au Congrès médical Panhellénique de 1901 (Texte grec), T. ii, p. 21.

† B. Patrikios: La tuberculose en Grèce, p. 73.

Plus de 10,000 tuberculeux auraient besoin en Grèce d'être recueillis et soignés dans les sanatoria. Sur ce nombre il y en a plus de deux mille qui sont privés de toutes ressources ou moyens d'existence et auraient besoin d'être admis gratuitement dans des sanatoria populaires, ce qui est impossible pour des raisons économiques, car pour les soigner il faudrait dépenser annuellement près de quatre millions de drachmes, et pour fonder de tels sanatoria populaires à leur usage il faudrait dépenser au moins huit millions de drachmes.

La Ligue tenant compte de tout cela, conseilla la fondation d'un pavillon spécial dans chacun des hôpitaux de l'État pour le traitement des tuberculeux selon les règles données aujourd'hui par la science moderne, en outre la création d'Établissements de désinfection dans les principales villes de la Grèce et jusqu'à ce jour elle a réussi partiellement, du moins sur ces deux points.

Mais la Ligue attribue une grande importance à la création de Dispensaires antituberculeux dans les grandes villes de l'Etat sur le modèle de ceux qui existent actuellement en France (à Lille, etc.), en Belgique, en Allemagne et ailleurs, d'autant plus qu'elle est d'avis que le Dispensaire fonctionnant comme établissement à la fois *social* et *médical* est plus en harmonie avec les coutumes, les habitudes et les préjugés du public et il est aujourd'hui le moyen le meilleur et le plus économique de lutter en Grèce contre la tuberculose. En se basant sur ces principes la Ligue a déjà fondé il y a deux ans un dispensaire antituberculeux à Athènes sur les bases du type Calmette, mais comme établissement social et médical tout en conseillant la fondation de dispensaires semblables dans les principales villes de la Grèce, ce qu'elle espère se fera bientôt.

En outre cette Ligue ne tardera pas à fonder un sanatorium sur une montagne élevée qui servira surtout d'école d'éducation antituberculeuse.

La Ligue dans son œuvre a été secondée par le gouvernement, qui est principalement intervenu comme auxiliaire moral, la recommandant et interprétant son but aux autorités et aux particuliers, et par la Croix Rouge Hellénique qui, suivant ses principes de haute philanthropie, est venue généreusement l'aider de ses deniers, luttant elle aussi avec la Ligue contre la tuberculose.

Quel a été le résultat de cette action de la Ligue?

Elle est parvenue à extirper des préjugés sociaux profondement enracinés dans le peuple, à éveiller l'attention et l'intérêt du public sur le danger qu'il court à cause de cette maladie et de son extension, à installer des Etablissements de désinfection non seulement à Athènes mais encore dans d'autres villes de la Grèce, à faire prendre soin des détenus dans les prisons atteints de tuberculose et de ceux qui sont soignés dans les hôpitaux généraux. En

outre les familles qui comptent dans leur sein des tuberculeux prennent maintenant des mesures prophylactiques et s'occupent de désinfection.

Ainsi quoique jusqu'à présent on ne soit point parvenu à obtenir une diminution des ravages causés par la tuberculose elle ne tardera pas tôt ou tard à être réalisée par la diffusion des principes de la Ligue et de l'influence qu'elle exerce sur la Société.

Depuis 1905 fonctionne sur l'initiative et le concours de dames philanthropes l'hôpital "Sotiria" fondé aux portes d'Athènes au pied de l'Hymette, dans lequel 40 lits ont été installés et où les tuberculeux sont soignés soit gratuitement soit contre rétribution alors que chez la plupart la maladie est dans un stade avancé.

C'est ainsi que la lutte antituberculeuse en Grèce a commencé et continue grâce à l'initiative privée aidée par la Croix Rouge Hellénique et par le gouvernement.

LÉGISLATION HELLÉNIQUE.

Le Décret Royal du 31 Décembre 1836 "Sur les soins à porter aux malades atteints de maladies contagieuses" ordonne ce qui suit pour ce qui est de la tuberculose pulmonaire.

"*Article* 47. La police dans le but d'empêcher la propagation de cette affection prend soin de ne pas laisser vendre ou faire usage par d'autres personnes tout ce qui a été employé par les personnes mortes de tuberculose: matelas, vêtements et linges, avant d'avoir été dûment aéré et lavé dans l'eau de chlore ou la lessive de cendres."

"*Article* 48. Les médecins eux aussi doivent attirer l'attention des parents du tuberculeux et de ceux qui l'entourent pour ce qui est de la propagation de la maladie, les empêchant même de se coucher sur le même matelas ou de séjourner dans la même chambre et généralement, de faire usage de ses vêtements, linges et vases."

Voilà donc *soixante douze ans* que la législation hellénique (dès 1836) déclare que la tuberculose pulmonaire est transmissible, ordonne des mesures prophylactiques et impose aux parents et aux médecins, sous peine d'emprisonnement de 1 à 6 semaines ou d'amende de 20 à 200 drachmes,* d'avoir à prendre des mesures de prophylaxie pour les personnes en bonne santé.

En outre la déclaration de la maladie après la mort de la personne atteinte de tuberculose est en Grèce obligatoire pour le médecin qui la soigne depuis la fondation du royaume hellénique.

Depuis lors la législation hellénique n'a pas été enrichie par de nouvelles dispositions spéciales relatives à la tuberculose.

Cette année la Chambre Hellénique a fait voter la loi "sur l'installation et le fonctionnement des Établissements de désinfection publics, communaux et

* Législation Hellénique. Code Pénal, article 572.

privés," et a en même temps ordonné la désinfection obligatoire en cas de maladies infectieuses et surtout contre la tuberculose.

Comme contribuant à renforcer efficacement la lutte contre la tuberculose en Grèce je considère les mesures que la Chambre Hellénique vient de faire voter* contre le paludisme, affection qui prédispose à la tuberculose ainsi que la lutte entreprise avec tant de chaleur en Grèce par la Société pour la limitation des affections paludéennes.

IV. Convocation d'un Congrès Hellénique contre la tuberculose en Grèce dans le but d'étudier des questions d'ordre local.

Bien des questions en rapport avec la tuberculose en Grèce, ont besoin d'une étude spéciale et de recherches particulières.

Telle est par exemple la question de la lutte contre la tuberculose dans les classes ouvrières, l'étude sur la réalisation possible ou non de la création de sociétés d'assurances contre la maladie pour les classes ouvrières, la prédisposition à la maladie ainsi que la morbidité par tuberculose chez les élèves (garçons et filles) des écoles tant publiques que privées, l'état de fréquence de la tuberculose en Grèce chez les prostituées et chez les émigrés hellènes à leur retour d'Amérique aussi bien que l'état de fréquence et le caractère de gravité de la tuberculose chez les vaches laitières en Grèce et chez les animaux domestiques, etc.

Dans le but d'étudier ces questions d'ordre purement local, sur l'initiative et sous les auspices de la Ligue Panhellénique contre la tuberculose vient d'être convoqué et se réunira à Athènes un Congrès hellénique contre la tuberculose au mois de mai 1909.

C'est de ce Congrès qu'on espère la solution de nombre de ces questions sinon de toutes.

Voilà comment se poursuit en Grèce la lutte contre la tuberculose.

Der Kampf gegen die Tuberkulose in Griechenland.—(Patrikios.)

I. Die Verbreitung der Tuberkulose in Griechenland von 1893 bis 1897 (inclusive).

II. Stiftung des Panhellenischen Bundes gegen die Tuberkulose (Ligue Panhellénique Antituberculeuse), und Anfang des Kampfes gegen die Tuberkulose in Griechenland.

III. Privat-Unternehmen.

IV. Staatliche Verhütungsmassregeln. Hellenische Gesetze.

V. Versammlung eines lokalen Congresses in Athen zur Verhütung der Tuberkulose und zum Studium von örtlichen Fragen.

* Loi sur la vente, contrôle etc. de la quinine du 13 février, 1908.

The Fight Against Tuberculosis in Greece.—(PATRIKIOS.)

I. The spread of tuberculosis in Greece from 1893 to 1897 (inclusive).

II. Founding of the Pan-Hellenic Antituberculous League, and beginning of the fight against tuberculosis in Greece.

III. Private initiative.

IV. Government preventive measures. Hellenic legislation.

V. Meeting of a local Congress in Athens for the prevention of tuberculosis and the study of local questions.

La Lucha contra la Tuberculosis en Grecia.—(PATRIKIOS.)

I. La propagación de la tuberculosis en Grecia de 1893 á 1897 (inclusivo).

II. Fundación de la Liga Anti-tuberculosa de Pan-Hellenic, y el principio de la lucha contra la tuberculosis.

III. Iniciativa privada.

IV. Medidas preventivas del Gobierno. Legislación Helénica.

V. Reunión de un Congreso Local en Atenas para la prevención de la tuberculosis y el estudio de las cuestiones locales.

THE TASK OF THE STATE IN THE ANTITUBERCULOSIS MOVEMENT.

By Hon. Governor Conrad Cedercrantz,
Kolmar, Sweden.

One of the first conditions of carrying the campaign against tuberculosis to a successful issue is, undoubtedly, the provision of a sufficient number of hospitals for the treatment of consumptives in an advanced stage of the disease, who constitute a source of constant danger of contagion to their surroundings. This is necessitated not only by compassion for these unfortunate fellow-beings, but also for the protection of those whom the consumptive exposes to the danger of contagion if he must spend the remainder of his life in his own or in other people's homes. Realizing this, in Sweden, where there has been a great lack of hospitals for consumptives, considerable effort has been made recently to bring about a better state of things.

With us, the usual rule is that expenses for the general administration of the department of health are defrayed by the community; but, in view of the great expense involved by a more general provision of tuberculosis hospitals, in the course of the work the opinion has grown stronger and stronger that, in some way or other, the State ought to coöperate and support the movement. Upon careful consideration of the matter it cannot be denied that the prevention of the spread of tuberculosis in the country is just as important a State economy as are many other enterprises, to the carrying out of which the State has engaged itself to contribute. The fact that tuberculosis is a universal danger seems to be a sufficient motive for the State to give its economic support in the struggle against the disease; in fact, to the consumptive's surroundings at home and at his work it is of such importance that, by practical treatment, the channels of infection be traced and destroyed and the knowledge of the character and the rational treatment of the disease be spread, that the economic coöperation of the State in arranging this matter seems to be fully justified.

Besides, it must not be overlooked that what is sacrificed to an energetic and practical fight against tuberculosis should not, from a wider political point of view, be considered as dead capital. Not only will those who have been restored to health by a rational treatment be saved to work for

the benefit of society, but it is of still greater importance that, by successfully preparing a methodical treatment for most consumptives, and by destroying the channels of infection, the disease may be expected in the future to be limited considerably in its extension.

There can, of course, be no reliable calculation made as to the value of the large labor supply which is, in this way, to be saved to society; but, surely, there is no exaggeration in assuming that the economic gain to society, through its outlay for the purpose in question, will fully counterbalance its expenses. In this respect it should not be forgotten that the evil in question makes the greatest ravages between the ages of twenty and sixty years. Of all the deaths between these ages in the towns of Sweden in the year 1904, about 36 per cent. were caused by tuberculosis, and of the deaths between the ages of twenty and forty years, this was the case with not less than 53 per cent.

Another argument in favor of State support of the antituberculosis movement may be mentioned here. It is greatly to the State's interest that the protective measures against the spread of the disease be carried out with a certain uniformity throughout the whole country. If this is not done, it might easily happen that communities that try, at great sacrifice of money, to limit the spread of contagion within their own boundaries, would never be able to reach this goal, for contagion would reach them through other communities that, for some reason or other, had not made arrangements for isolating their consumptives.

Even before the question arose of erecting more tuberculosis hospitals in Sweden, the State had given liberal support in the struggle against the disease. In 1897 a sum of about 2,200,000 Kroner (1 krone = $0.265), subscribed by the nation at large, was presented to King Oscar II. in honor of the twenty-fifth anniversary of his accession to the throne, and the King very generously devoted the amount to the cause of checking and curing tuberculosis. At the same time he expressed the desire that the money be used for erecting at least three public sanatoriums for the benefit of poor persons suffering from consumption of the lungs in its incipient stages, or who were not yet so ill that their condition could not be improved. It soon, however, became apparent that this sum—the so-called "Jubilee-Fund"—was not sufficient to build three sanatoriums, and that it would be necessary either to rest content with two, or to apply to the Riksdag (Diet) for a special appropriation for a third. The latter course was decided on, and in 1898 the Riksdag voted a large sum for the erection of the third sanatorium. The Riksdag also granted to all three sanatoriums free building-sites and wood for fuel.

While the work was in progress, a great advance in the price of labor and building materials occurred. For this and other reasons the bill of costs

proved to be considérably greater than had been estimated—so much greater, in fact, that the portion of the "Jubilee-Fund" that had been invested in the belief that the interest upon it would contribute largely to the maintenance of the institutions, had been very much reduced, and was by no means large enough now to render the future of the sanatoriums secure, more especially as the cost of maintenance was continually increasing. In 1904 the Riksdag generously voted the sum of 200,000 Kroner to be added to the "Jubilee-Fund" every year until it should be sufficiently large to provide security for the further maintenance of the sanatoriums. The Riksdag has, in addition, made an appropriation of 200,000 Kroner for the erection of the Crown-Princess Victoria's Sea Sanatorium for Scrofulous Children on the Skaldervik, and the last Riksdag has voted a sum of money for maintaining the Styrso Sea Sanatorium for Children.

But it was especially in connection with the plan of a more general provision of tuberculosis hospitals that the principle of the State's economic coöperation in the struggle against the disease proved to have aroused public opinion. At the proposal of the Swedish National Antituberculosis Association the Governor appointed a committee to investigate thoroughly the tuberculosis question, and to propose such measures as might be expected from the State. After having received the report of this committee and obtained the opinion of the authorities concerned, the Government placed a proposition before the Riksdag in April, 1908. On the 20th of May following the Riksdag passed a resolution to the effect that the State should contribute to the erection of sanatoriums and tuberculosis hospitals to the extent of half the actual cost of construction, with a maximum of 1000 Kroner (about $265) a bed, and that the Government should be authorized to give the necessary grounds belonging to the State, free of cost, to county councils, municipalities, parishes, associations, and private persons intending to erect such sanatoriums and hospitals. The Riksdag estimated that the total building appropriation during the next ten years would amount to 4,600,000 Kroner (about $1,219,920), and of this amount it assigned 400,000 Kroner for the year 1909.

In its proposition to the Riksdag the Government had expressed the opinion that the State ought also to contribute to the maintenance of the patients at these hospitals. This opinion was accepted by the Riksdag. With a contribution of 50 ore (about thirteen cents) a patient a day, the cost to the State for this purpose, during the period 1909–1918, was estimated at 6,442,250 Kroner. Thus the State should pay a cash amount of 11,042,250 Kroner (about $2,928,405) for the tuberculosis movement during the next ten years, besides giving the requisite ground in the possession of the Crown.

The importance of this resolution of the Riksdag cannot be overestimated. There is no doubt that the coöperation of the State in the form and to the

extent thus decided will be of the greatest value in carrying the fight against tuberculosis to a successful issue.

Soon after the Riksdag had passed the foregoing resolution, the second and last part of the report of the Government's committee appeared in print. In this the Committee, after thoroughly discussing the matter and giving an account of the legislation on tuberculosis abroad, proposes an entirely new antituberculosis act, some of the provisions of which I may mention here. For instance, it should be the duty of the medical attendant to report each death due to consumption that had come under his care, and instructions are proposed as to disinfection of the dwelling-place, personal clothing, and bed-clothing of the deceased. The local boards of health also should make the necessary arrangements to lessen the danger of infection where the consumptive lives under conditions that probably endanger the health of those around him. Further, it is proposed that the employment of consumptive persons in the dairy trade shall be prohibited, as also the employment of tuberculous women as wet-nurses.

As might be expected, the Committee has paid special attention to the question of protecting the coming generation from the danger of infection by tuberculosis. For instance, there should be a law dealing with the care of nurslings, to the effect that such children should not be reared in homes where tuberculosis exists. The Poor Law authorities, who bind out children, should exercise care that these children do not live under similar conditions. This should constitute an addition to the superintendence which, under the present law, the boards of health have to exercise with regard to nurslings.

The Committee has been fully alive to the importance of hygiene in the schools. Persons suffering from consumption in an infectious stage should not be allowed to serve as teachers. Before being appointed, the teacher must show a doctor's certificate. Should a teacher contract the disease after his appointment, he might be suspended from service and, if his condition does not improve within one year, he might be dismissed. Moreover, pupils duly declared to be suffering from infectious consumption should be liable to temporary suspension or to dismissal from the school. At the same time provision should be made that the pupil may get tuition. Detailed instructions also have been worked out regarding the cleaning and ventilation of primary schools and infant schools.

Finally, the Committee has had under consideration the relation between hygiene in dwelling-houses and in factories and the prevalence of tuberculosis. With regard to domestic hygiene, the Committee has proposed that it shall be the duty of the board of health to exercise control over the hygiene of private houses.

STATISTIK DER VOLKSSANATORIEN FÜR ERWACHSENE IN DER SCHWEIZ, UND GEGENWÄRTIGER STAND DER TUBERKULOSEBEKÄMPFUNG IN DER SCHWEIZ.

Dr. W. Kürsteiner,

Bern.

Im Auftrage des Schweizerischen Gesundheitsamtes (Direktor Dr. Schmid) erstattet.

Die nachfolgende tabellarische Zusammenstellung verzeichnet die Kurerfolge der letzten drei Jahre aus den sieben bestehenden schweizerischen Volkssanatorien. Die Kinderheilstätten von Heiligenschwendi, Wald, Leysin, und Langenbruck, mit insgesammt 120 Betten, sind, wie die Privatsanatorien, nicht miteinbezogen.

Die Zahl der Betten für Erwachsene beträgt auf Ende 1907, 530 (Heiligenschwendi 34, Leysin 120, Malvilliers 22, Basel-Davos 90, Wald 106, Braunwald 34, und Clairmont 62).

Nach der Höhenlage gruppirt steht Basel-Davos mit 1660m oben an und folgen alsdann die Sanatorien Clairmont mit 15500m, Leysin 1450m, Braunwald 1180m, Heiligenschwendi 1140m, Wald 907m, Malvilliers 800m.

Das Minimalkopfgeld pro Tag beträgt 1 Franken 50 centimes in Heiligenschwendi und Braunwald, 2 Franken in Davos und Leysin, 3 Franken in Clairmont.

Noch ist zu bemerken, dass zu den günstigen Resultaten betreffend die Arbeitsfähigkeit jeweilen auch die Lungenzustandsverbesserung, die Körpergewichtszunahme, die Hämoglobinsteigerung, die Lungen Kapazitäterhöhung, die Mischinfektionsbeseitigung und die Entfieberung hinzuzunehmen sind.

STATISTIK DER VOLKSSANATORIEN DER SCHWEIZ.*

		(Bern) Heiligenschwendi.			(Basel) Davos-Dorf.			(Zürich) Wald.			(Vaud) Leysin, S. Popul.			(Neuchâtel) Malvilliers.			(Genève) Clairmont S. Sierre.			(Glarus) Braunwald.		
		1905.	1906.	1907.	1905.	1906.	1907.	1905.	1906.	1907.	1905.	1906.	1907.	1905.	1906.	1907.	1905.	1906.	1907.	1905.	1906.	1907.
		Prozent.	Prozent.	Prozent.	Prozent.	Prozent.	Prozent.	Prozent.	Prozent.	Prozent.	Prozent.	Prozent.	Prozent.	Prozent.	Prozent.	Prozent.	Prozent.	Prozent.	Prozent.	Prozent.	Prozent.	Prozent.
I. Stadium.	Kurerfolg positiv	100.0	99.2	100.0	96.2	94.5	94.4	94.5	97.3	94.2	97.7	93.5	97.0	100.0	90.6	94.9	90.9	94.7	97.2	Angaben unerhältlich.	96.4	100.0
	Kurerfolg negativ	..	0.8	..	3.8	5.5	5.6	5.5	2.7	5.8	2.3	6.5	3.0	..	9.4	5.1	6.1	2.6	2.8		3.6	..
	Gestorben	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3.0	2.6	..		..	..
	Arbeitsfähigkeit voll	97.5	94.5	97.1	92.2	91.8	90.3	89.0	93.7	92.6	97.5	93.5	86.4	96.2	93.8	87.2	63.7	34.2	47.2		96.4	77 1
	Arbeitsfähigkeit wenig beeinträchtigt	2.5	4.7	2.9	2.5	2.7	6.9	6.4	3.6	5.8	2.5	6.5	12.1	..	3.1	12.8	30.3	57.9	44.4		..	22.9
	Arbeitsfähigkeit stark beeinträchtigt	..	0.8	..	1.3	5.5	2.8	4.6	2.7	1.6	..	..	1.5	3.8	3.1	..	3.0	5.3	8.4		3.6	..
II. Stadium.	Kurerfolg positiv	95.5	93.9	92.9	95.2	92.5	85.4	80.0	80.6	91.1	92.3	87.9	65.2	100.0	65.0	68.2	77.0	90.7	91 7	Angaben unerhältlich.	87.5	100.0
	Kurerfolg negativ	4.5	6.1	6.3	3.2	7.5	12.5	17.8	19.4	8.9	7.6	12.1	31.1	..	35.0	27.3	3.0	7.0	8.3		6.3	..
	Gestorben	..	..	0.8	1.6	..	2.1	2.2	..	..	..	..	3.7	..	..	4.5	..	2.3	..		6.3	..
	Arbeitsfähigkeit voll	70.0	72.5	76.2	87.3	88.7	85.4	64.4	61.3	80.0	92.4	85.7	28.1	..	30.0	27.3	26.5	23.3	16.7		25.0	44.4
	Arbeitsfähigkeit wenig beeinträchtigt	28.6	23.7	20.6	9.5	9,4	10.4	15.6	22.6	13.3	3.8	9.9	53.4	100.0	40.0	59.1	70.6	55.8	61.1		50.0	44.4
	Arbeitsfähigkeit stark beeinträchtigt	1.4	3.8	2.4	1.6	1.9	2.1	17.8	16.1	6.7	3.8	4.4	14.8	..	30.0	9.1	2.9	18.6	22.2		18.7	11.2
III. Stadium.	Kurerfolg positiv	59.4	66.3	65.8	81.5	77.1	78.4	63.6	66.3	67.7	55.1	45.8	31.1	..	13.3	20.0	58.4	70.6	100.0	Angaben unerhältlich.	48.6	60.6
	Kurerfolg negativ	40.6	33.7	32.9	13.9	15.7	14.8	34.8	32.6	28.1	41.1	48.2	57.8	100.0	86.7	80.0	33.3	17.6	..		45.7	36.4
	Gestorben	..	..	1.3	4.6	7.2	6.8	1.8	1.1	4.2	3.8	6.0	11.1	..	..	..	8.3	11.8	..		5.7	3.0
	Arbeitsfähigkeit voll	11.0	20.2	26.5	46.1	48.2	50.0	39.1	38.0	38.5	24.4	24.1	2.2	..	..	..	..	..	..		..	9.1
	Arbeitsfähigkeit wenig beeinträchtigt	60.3	51.5	47.1	30.8	24.1	27.0	23.6	32.6	38.3	25.6	28.9	33.3	33.3	13.3	40.0	62.5	35.9	18.7		11.4	33.3
	Arbeitsfähigkeit stark beeinträchtigt	28.7	28.3	25.1	18.5	20.5	16.2	35.5	28.4	26.0	46.2	41.0	53.4	66.7	86.7	60.0	29.2	82.3	81.3		82.9	54.6

* Fortsetzung der Statistiken von 1899, 1900, 1901 (Dr. Schmid, "Tuberculosis," 1903, S. 261); 1900 und 1901 (Prof. Egger, Zeitschrift für Tuberkulose und Heilstättenwesen, 1904, S. 173); 1902, 1903, und 1904 (Dr. Ost, Zeitschrift für Tuberkulose, 1906, S. 207); ohne Einschluss der Privatsanatorien und nur die Zahlen der Erwachsenen berücksichtigt.

ZUSAMMENFASSUNG DER ERFOLGE VON 1905–07.*

	Positiver Kurerfolg.	Negativer Kurerfolg.	Gestorben.	Volle Arbeitsfähigkeit.†	Beeinträchtigte Arbeitsfähigkeit.	Aufgehobene Arbeitsfähigkeit.
I. Stadium.....	95.9%	3.6%	0.5%	84.4%	11.6%	3.5%
II. Stadium.....	81.5%	17.6%	0.9%	60.0%	30.3%	8.8%
III. Stadium.....	56.6%	39.7%	3.7%	19.5%	30.6%	46.2%
Total.....	78.0%	20.3%	0.7%	54.6%	24.1%	19.5%

Die Verteilung der Kranken auf die drei Turban'schen Stadien war für die drei grössten Volksheilstätten in den letzten drei Jahren folgende:

	Heiligenschwendi.			Basel-Davos.			Wald.		
	1905.	1906.	1907.*	1905.	1906.	1907.*	1905.	1906.	1907.*
I. Stadium.....	21	30	16	37	34	35	41	48	46
II. Stadium.....	40	31	41	29	23	26	17	13	17
III. Stadium.....	39	39	43	34	43	39	42	39	37

Dabei liefern die Männer die grosse Anzahl von Erkrankungen des III., die Frauen die grosse Anzahl des I. Stadiums.

Die mittlere Kurdauer der definitiv Aufgenommenen betrug in Tagen ausgedrückt:

In	1905.	1906.	1907.
Heiligenschwendi.....	88	9	88
Basel-Davos.....	156	151	163
Wald.....	129	132	139

* Da die Angaben für das Sanatorium Braunwald sich nur auf die Jahre 1906 und 1907 beziehen, ist diese Anstalt in dieser Zusammenfassung nicht berücksichtigt worden.

† Heilung im wirtschaftlichen Sinne haben demnach wie im Triannium 1899–1901 die Hälfte der Kranken zu verzeichnen, $\frac{1}{4}$ derselben ist für mehr oder weniger lange Zeit wieder arbeitsfähig geworden und nur $\frac{1}{5}$ hat die Erwerbsfähigkeit nicht wieder erlangt. Dabei sind in der Tabelle nur die definitiv aufgenommenen Kranken, die über 4 Wochen verpflegt wurden, berücksichtigt worden und 90% hatten beim Eintritt noch gearbeitet. Ungleiche Beurteilung des Kurerfolges und der Arbeitsfähigkeit, Verschiedenheit des statistischen Materials an und für sich (infolge grösserer oder geringerer Distanzen zwischen Sanatorium und Wohnort und damit zusammenhängenden Unterschieden in der Kurdauer) sind die Gründe der zum Teil recht bedeutend differierenden Ergebnisse der verschiedenen Stationen. Soviel aber ist aus den Tabellen deutlich ersichtlich, dass sowohl der klinische wie der wirtschaftliche Erfolg der Volksheilstättenbehandlung ein erfreulicher genannt werden darf; freilich sollten die Schwerkranken in stets zunehmender Zahl der Asyl-, Spital- oder Heimpflege überlassen und aus der Liste der Sanatoriumskuranten ausgemerzt werden können; leider aber fehlt es zur Zeit noch landauf landab sowohl an den Spitaleinrichtungen speziell für diese Kranken, als auch an der organisierten häuslichen Fürsorge.

Hinsichtlich der Dauer-Erfolge unserer Heilstätten ist auf die Dissertation von Dr. Walter, Bern, 1904, sowie auf die Jahresberichte der 3 ältesten Sanatorien Basel-Davos, Zürich-Wald, Bern-Heiligenschwendi zu verweisen, und seien hier nur die Schlusssätze zweier Zusammenstellungen wiedergegeben:

Basel-Davos, 1905, erwähnt nach 9 Jahren Statistik (*1*) eine bedeutend geringere Mortalität für die Davos-Patienten in den ersten Jahren als für die Basler Vergleichspersonen.

(*2*) Für die *nicht* in Davos Verpflegten eine bedeutend grössere Mortalität in den ersten Jahren, eine ungefähr gleichgrosse wie für die Davoser Patienten in den späteren Jahren.

(*3*) Eine durchschnittlich dreimal grössere Zahl von Erwerbsfähigen bei den Davoser Patienten als bei den nicht in Davos Behandelten.

Zürich-Wald, 1906, sagt wörtlich: Von den in den letzten 6 Jahren Entlassenen starben innerhalb der ersten 2 Jahre 25 Prozent; nur teilweise oder gar nicht arbeitsfähig waren bei der Entlassung nahezu 40 Prozent. Nach der Entlassung findet ein rasches Absterben jener Kranken statt, die durch die Anstaltsbehandlung ihre volle Leistungsfähigkeit nicht wieder erreicht haben; wesentlich günstiger werden die Aussichten für die Kranken, wenn 2–3 Jahre später die Arbeitsfähigkeit noch erhalten ist; die meisten dieser Glücklichen können dann als relativ geheilt betrachtet werden.

Während von den Leichterkranken bei der Entlassung die meisten 80% arbeitsfähig sind, so sinkt bei denen des II. Stadiums die Ziffer der arbeitsfähig Gewordenen ganz erheblich und es dürfte die Zahl der Relativgeheilten 40 Prozent nicht überschreiten; von den Schwerkranken sind höchstens 10 Prozent relative Heilungen anzusetzen.

Mit den Volkssanatorien hat die systematische Bekämpfung der Tuberkulose in der Schweiz eingesetzt (1905); ihnen folgten, ebenfalls der privaten Initiative entsprossen, die Fürsorgestellen (Dispensaires) und erst allmählig tauchen auch Tuberkulosegesetze und -Erlasse auf.* Die Schöpfung der Ferienkolonien† hat mit der Antituberkulose-Kampagne nur indirekten Zusammenhang.

Den Bericht des Schweizerischen Gesundheitsamtes an den Tuberkulose-Kongress von 1905 in Paris ergänzend, ergibt sich auf Juli, 1907, folgender Stand der Tuberkulosebekämpfung in der Schweiz:

Schweizerische Vereinigungen gegen Tuberkulose.—Die schweizerische Zentralkommission zur Bekämpfung der Tuberkulose (Präsident: Direktor Dr. Schmid) bildet das nationale Komitee der "Internationalen Vereini-

* Dr. Bollag, "Tuberkulosegesetzgebung in der Schweiz," Mitteilung an den Tuberkulose-Kongress in Washington, 1908.

† Im Berichte von 1905 des Schweizerischen Gesundheitsamtes (Dr. Carrière) an den Tuberkulose-Kongress in Paris, La Tuberculose et l'armement antituberculeux en Suisse, Berne, 1906.

gung" gegen Tuberkulose, in welche sie ein Ehrenmitglied und 2 Titular-Mitglieder entsendet, nebst einer Anzahl korrespondierender Mitglieder. Ihr umfangreiches Arbeitsprogramm dient den kantonalen und lokalen Vereinigungen gegen Tuberkulose als Wegleitung für deren Detailarbeit. Die Kreierung eines schweizerischen Tuberkulose-Museums in Verbindung mit dem Schweizerischen Gesundheitsamt steht bevor.

Die Hygiene-Kommission der schweizerischen gemeinnützigen Gesellschaft ist daran, die Enquête von 1905-06 über die Ursachen der Tuberkulose in der Schweiz zu bearbeiten.

Der schweizerische gemeinnützige Frauenverein hat im Februar 1905 eine besondere 7-gliedrige Zentrale Tuberkulose-Kommission eingesetzt und ist seit 1906 Kollektivmitglied der schweizerischen Zentral-Kommission zur Bekämpfung der Tuberkulose. 24 Sektionen beschäftigen sich mit der Tuberkulosebekämpfung durch Austeilen von Tuberkulose, Merkblättern, Abhaltung von Tuberkulosevorträgen, Abgabe von Milch, von Mittagessen, Beiträge an Sanatoriumskuren und Landaufenthalte, Wäschebesorgung, Wohnungsdesinfektion, Abgabe von Spucknäpfen, Krankenpflege u. s. w. Die Gründung von Frauenligen zur Bekämpfung der Tuberkulose in den Kantonen Solothurn, Neuenburg, Luzern, Freiburg, Waadt, ist hauptsächlich ihr Werk. Lausanne darf sich rühmen, die erste Sektion zu sein, welche ein kleines Asyl für tuberkulöse Kinder geschaffen hat; die Sektion Zürich hat die dortige Fürsorgestelle ins Leben gerufen.

Auch das schweizerische Rote Kreuz beschäftigt sich in einzelnen seiner Sektionen mit der Tuberkulose, indem es Vorträge über Tuberkulose ansetzt, Tuberkulose-Vereine subventioniert und Bildungskurse über Tuberkulose arrangiert, in deren Abendvorträgen die Bedeutung, Ursachen, Behandlung, Verhütung und Bekämpfung vorgeführt werden.

Tuberkulosebekämpfung in den Kantonen.—In den meisten Kantonen der Schweiz existieren heute Vereine, Kommissionen oder Ligen, die sich mit der Bekämpfung der Tuberkulose abgeben. Hier die Aufzeichnung derselben:

Appenzell a. Rh.: Tuberkulose-Kommission der kantonalen gemeinnützigen Gesellschaft.

Aargau: Sanatoriumskommission der kantonalen gemeinnützigen Gesellschaft; Tuberkulose-Kommission.

Basel-Stadt: Kommission für die Basler Heilstätte für Brustkranke in Davos—Basler Hülfsverein für Brustkranke—Kommission zur Fürsorge für Erholungsbedürftige; Kommission der Kinderheilstätten in Langenbruck.

Basel-Land: Kantonale Sanatoriumskommission der kantonalen gemeinnützigen Gesellschaft—Verband basellandschaftlicher Krankenkassen.

Bern: Verein der bernischen Heilstätte für Tuberkulose in Heiligenschwendi—kantonale Tuberkulosekommission der medizinisch-chirurgischen

Gesellschaft—Fürsorgeverein für tuberkulöse Kranke der Stadt Bern mit Fürsorgestelle—Tuberkulosekommission der Sektion Bern des schweizerischen gemeinnützigen Frauenvereins.

Freiburg: Ligue fribourgeoise contre la tuberculose mit Distriktkomitees, 2560 Mitglieder—Comité pour le placement de tuberculeux au sanatorium de Heiligenschwendi, à Morat.

Genf: Fondation du Sanatorium génevois—Société auxiliaire du Sanatorium génevois—Comité génevois des bains de mer (Hôpital maritime de l'Enfance à Cannes)—Dispensaire.

Glarus: Verwaltungskommission des Sanatoriums Braunwald der kantonalen gemeinnützigen Gesellschaft—kantonale glarnerische Kommission zur Bekämpfung der Tuberkulose.

Graubünden: Verein zur Bekämpfung der Tuberkulose und Errichtung einer bündnerischen Volksheilstätte für Lungenkranke—kantonale Tuberkulosekommission.

Luzern: Verein für ein luzernerisches Lungensanatorium, zugleich kantonale Tuberkulosekommission mit 2500 Mitgliedern—Frauenliga zur Bekämpfung der Tuberkulose.

Neuenburg: Ligue neuchâteloise contre la tuberculose mit Dispensaire—Comité du Sanatorium de Malvilliers.

Nidwalden: Kantonale Tuberkulose-Kommission.

Schaffhausen: Tuberkulose-Kommission der Sektion Schaffhausen des schweizerischen gemeinnützigen Frauenvereins.

Solothurn: Kommission der solothurnischen Heilstätte für Lungenkranke der kantonalen gemeinnützigen Gesellschaft—Solothurnische Frauenliga zur Bekämpfung der Tuberkulose mit über 6000 Mitgliedern.

St. Gallen: St. Gallische Sanatoriumskommission der kantonalen gemeinnützigen Gesellschaft—Tuberkulose-Kommission der Sektion St. Gallen des schweizerischen Frauenvereins.

Thurgau: Sanatoriumskommission der kantonalen gemeinnützigen Gesellschaft.

Tessin: Comités des bains de mer à Locarno, Lugano, Bellinzona und Mendrisio.

Uri: Hier hat die kantonale Sanitätskommission die Funktionen der kantonalen Tuberkulosekommission übernommen.

Waadt: Comité du Sanatorium populaire de Leysin—Ligue vaudoise contre la tuberculose—Dispensaire de la Policlinique de Lausanne—Dispensaire du Dr. Veillard (Source, école de gardesmalades) für unbemittelte Tuberkulöse.

Zug: Spezialkommission für den Bau einer Kinderheilstätte, der kantonalen gemeinnützigen Gesellschaft, zugleich zugerische Kommission für Bekämpfung der Tuberkulose.

Zürich: Aufsichtskommission der zürcherischen Heilstätte für Lungenkranke in Wald—Komitee für skrofulöse und rachitische Kinder in Zürich —Tuberkulosekommission der Sektion Zürich des schweizerischen gemeinnützigen Frauenvereins mit Fürsorgestelle—kantonale Tuberkulose-Kommission.

Volkssanatorien für Erwachsene.—Heiligenschwendi, bernische Volksheilstätte für Lungenkranke, auf 1149 m Höhe über Meer, mit 96 Betten.

Davos, in der Stille, Baslerheilstätte, auf 1660 m, mit 90 Betten.

Wald, Zürcherheilstätte, auf 907 m, mit 106 Betten.

Braunwald, Glarner-Heilstätte, auf 1180 m, mit 34 Betten.

Leysin, Waadtländische und interkantonale Volksheilstätte, auf 1200 m, mit 120 Betten.

Malvilliers, Neuenburgische Heilstätte, auf 860 m, mit 22 Betten.

Clairmont, Genferheilstätte, auf 1500 m, mit 62 Betten.

Es macht dies ein Total von 7 kantonalen Volksheilstätten mit zusammen 530 Betten aus; sie alle sind der Privatinitiative zu verdanken; die Beteiligung der Kantone beschränkt sich auf Subventionierung.

Im Entstehen begriffen sind: Ein solothurnisches Volkssanatorium (Allerheiligen), bezugsbereit auf Ende 1909;

ein *St. Gallisches* (Knoblisbühl am Wallenstadterberg), im Bau begriffen;

ein *Aargauisches* mit 327,000 Fr. Baufonds;

ein *Luzernerisches* mit 120,000 Fr. Baufonds;

ein *Freiburgisches,* in den "Sciernes d'Albeuve" geplant durch die Ligue antituberculeuse fribourgeoise;

ein Bündnerisches, in Arosa, in Sicht, mit 115,000 Fr. Baufonds;

ein *Neuenburgisches,* im Stadium begriffen (Sanatorium Malvilliers ist eine Gründung der Chocoladefabriken Russ-Suchard), und endlich ein *Thurgauisches* Volkssanatorium.

Noch ist zu erwähnen, dass verschiedene Kantone, die kein eigenes Sanatorium besitzen, Verträge mit bestehenden Heilstätten anderer Kantone abgeschlossen haben; so hat sich Solothurn 10 Betten in Heiligenschwendi, Basel-Land 10 Betten in Davos, Schaffhausen 5 Betten in Wald, Thurgau einige in Braunwald, Luzern 10 Betten im zukünftigen solothurnischen Allerheiligen, die Gemeinde Murton (Kt. Freiburg) 2 Betten in Heiligenschwendi gesichert.

Volkssanatorien für Kinder.—Das erste Kindersanatorium wurde 1902 in Leysin mit 35 Betten, das zweite, 1903, in Heiligenschwendi mit 42 Betten eröffnet.

Das Kinderhaus der Heilstätte Wald wird 1909 fertig sein und für ein Kinderpavillon in Braunwald besteht ein Baufonds von 18,000 Franken.

Erzenberg, das Kindersanatorium von Basel, in Langenbruck, mit

seinen 84 Betten, kann, wie wohl eigentlich Privatheilstätte, der niedrig gehaltenen Preise wegen, ganz wohl ein Kindersanatorium genannt werden.

Als letzte *direkte* Tuberkulosebekämpfungseinrichtungen für Kinder bleiben die "*cures de bains de mer*" der Kantone Genf und Tessin, die Kinderabteilungen des Armenbades Schinznach (Schwefelquelle) und des Sanatoriums Rheinfelden (Soolebad) zu erwähnen übrig.

Indirekten Kinderschutz gegen Tuberkulose bedeuten: alle unsere Ferienkolonien (gegen 40 an Zahl und für Aufnahme von gegen 5000 Kindern eingerichtet); die vielen Kinderheime für rachitische, skrofulöse, blutarme Kinder; die verschiedenenorts eingeführte Milchversorgung der Kinder in der Schule und während der Ferien die Milchküchen und Säuglingsheime von Genf, Zürich, Basel, Bern, Aarau, etc. Mit der Einrichtung von Waldschulen haben die Stadt Lausanne und die Gemeinde Hessigkofen den Anfang gemacht; Walderholungsstätten beabsichtigt Bern-Stadt in seinen prachtvollen, ganz nahen Wäldern einzurichten.

Sanatorien für Bemittelte.—Infolge seiner überaus günstigen klimatischen Verhältnisse sind einzelne auserlesene Höhenkurorte zu wahren internationalen Sammelpunkten der Tuberkulösen geworden; es befinden sich dieselben in weit beträchtlicheren Höhen über Meer als die Volkssanatorien, bei denen geschützte, sonnenreiche, nebelarme Lage, nicht allzugrosse Entfernung von zuhause, Keim- und Staubfreiheit der Luft die Hauptbedingungen ausmachen. Mehr denn 2000 Betten stehen den bemittelten Tuberkulösen in den Stationen Davos, Arosa, Leysin, Beatenberg, Weissenburg, Montana, Vermala, Ambri-Piotta, Piora zur Verfügung.

Tuberkulose-Fürsorgestellen, bezw. Dispensaires.—Seit dem letzten Berichte von 1905 des Hrn. Dr. Carrière sind als *neue* Schöpfungen gegen die Tuberkulose und in Ergänzung der Sanatorien für Leichterkranke, als Fürsorge speziell für die Schwerkranken, zu Hause zu Verpflegenden, aber auch als Auskunfts- und Untersuchungsstellen für alle übrigen unbemittelten Tuberkulösen die Fürsorgestellen bezw. Dispensaires antituberculeux ins Leben gerufen worden. Wir notieren zur Zeit folgende Stationen:

Die Fürsorgestelle für tuberkulöse Kranke der Stadt Bern als Zentralstelle des Tuberkulose-Fürsorgevereins, seit 1. Juni 1906;

die Fürsorgestelle für tuberkulöse Kranke der Stadt Zürich, der Sektion Zürich des schweizerischen gemeinnützigen Frauenvereins, im Mai 1908 eröffnet;

le dispensaire antituberculeux de Neuchâtel de la Ligue contre la Tuberculose dans le district de Neuchâtel, im Februar 1906 eröffnet;

le dispensaire antituberculeux de Genève, am 1. Mai 1906 eröffnet;

le dispensaire antituberculeux de la Policlinique universitaire seit 1. November 1907, et celui de la Source (Ecole de garde-malades) du Dr. Veillard à Lausanne.

Weitere "Fürsorgestellen" sind in Bildung begriffen: in Aarau, Biel-Schaffhausen, St. Gallen, Winterthur.

Die Antituberkulose-Bewegung in der Schweiz hat nach dem Gesagten in richtiger Weise den Sanatorien die Dispensaires folgen lassen und sollen sich diese zwei Einrichtungen nicht etwa gegenüberstehen, sondern kompletieren, in dem Sinne, dass die Sanatorien den initialen und leichtern Formen der Tuberkulose zur Heilung und Schulung, die Fürsorgestellen dagegen der häuslichen Fürsorge, besonders der schwerkranken Tuberkulösen, sowie ihrer Familien dienen sollen; dabei werden die Fürsorgestellen auch als zentrale Auskunfts- und Untersuchungsstellen für alle Formen der Tuberkulose funktionieren müssen, sich der Sputumuntersuchung annehmen und für richtige Desinfektion der Krankenräume, der Wäsche und Spucke sorgen.

An was es uns zur Zeit noch bedenklich gebricht, sind zwei Dinge: (1) vermehrte Gelegenheiten zur Unterbringung unserer schwerkranken Tuberkulösen; (2) durchgreifende Aufklärung und Belehrung unseres Volkes über das Wesen der Tuberkulose.

Der Staat als solcher hat sich bis zur Stunde noch nicht bemüssigt gefühlt, in den Kampf gegen die Tuberkulose einzugreifen; wenn auch das Schweizerische Gesundheitsamt die leitende Stellung in dieser Bewegung einnimmt, so sind es doch neben der schweizerischen Tuberkulosekommission vornehmlich die 15 kantonalen Tuberkulosekommissionen, die 7 kantonalen Lungenheilstätten, die 5 kantonalen Frauenligen, die 5 Dispensaires antituberculeux, die verschiedenen Sektionen der schweizerischen gemeinnützigen Gesellschaft und des schweizerischen gemeinnützigen Frauenvereins, die den Kampf gegen diese verheerende Volksseuche mit Wucht führen.

THE CAMPAIGN AGAINST TUBERCULOSIS IN THE ARGENTINE REPUBLIC.

By Emilio R. Coni, M.D.,
Buenos Aires.

History.

The first true practical measures of prevention against tuberculosis in the Argentine Republic were adopted in 1892. The director of the health department then ordered that tuberculous patients in the municipal hospitals should be concentrated in special wards of the isolation hospital (now Muniz) until a special establishment was constructed. In September of the same year an ordinance was issued prohibiting the admission of pulmonary tuberculosis to the common hospitals of the capital unless they were admitted to special wards. At the same time pulmonary tuberculosis was included in the group of affections where disinfection was obligatory in case of death, and only voluntary during the course of disease. It was then determined to erect a hospital devoted exclusively to tuberculosis, and in November, 1893, the malady was included among those which it was obligatory to note. Honor is due to the Argentine Republic for having been the first of Latin-American nations to incorporate in its sanitary legislation the effective resources of modern prevention; that is, compulsory notification and disinfection of tuberculosis. The honor is due Dr. Henry Tornú of having, in 1898, first traced in the Argentine Republic a general plan of prevention. His active propaganda in the press, his work on the climate of the hills of Cordoba, his popular review, "La Profilaxia," entitled him to public gratitude. The municipality of Buenos Aires, on its part, has satisfied its debt of gratitude, designating with his name the first municipal sanatorium; and the Argentine League, on its part, baptized its first dispensary, founded in 1902, with the name of this self-denying physician.

In July, 1899, Dr. Samuel Gache proposed to the "Argentine Medical Circle" the foundation of a league against tuberculosis. A short time after Dr. Robert Wernicke endeavored to pursue the same idea, but met with no success.

On May 11, 1901, in a small meeting of doctors, life was given to the Argentine League Against Tuberculosis, at a meeting called by me as presi-

dent of the International Committee for the Prevention of Tuberculosis in Latin America.

The Argentine League soon received the patronage of the Minister for Home Affairs, and one of his first suggestions was to organize branches in the various provinces of the republic. Unfortunately, this enterprise met with but little success, for up to now there are not more than two branches of the Central League, one in Rosario and another in Santa Fé.

The Argentine League commenced in 1910 its work of instruction in a popular way, publishing leaflets, pamphlets, and also a catechism on tuberculosis. On July 22, 1901, Dr. Samuel Gache, then president of the Argentine League Against Tuberculosis, gave the first conference to demonstrate the necessity of organizing an antituberculous defense, by means of popular leagues. After this conference eleven more followed, given by members of the League.

Later there were issued two wall engravings of great interest. The first relates to tuberculosis in general, to explain what the infirmity is, its causes, its prevention, and its treatment. The second graphically demonstrates the havoc which tuberculosis produces in comparison to other infectious diseases in the fourteen provinces of the Argentine Republic. Distributing them profusely and gratuitously in the schools, workshops, mills, barracks, post-offices, public administration offices, these engravings have served as a powerful auxiliary in spreading the ideas to prevent tuberculosis.

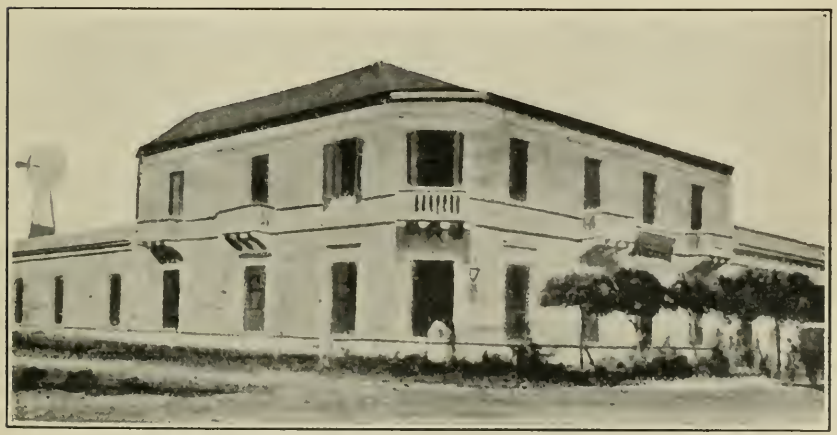
An ingenious method of propaganda was initiated by Dr. Tornú and realized by a powerful society—the General Match Manufacturing Co. It consisted in having printed on the match-boxes instructions relative to tuberculosis, in the form of short maxims. In the first year of its existence the League held two public meetings—one on the subject of spittoons, and the other to offer prizes to those who suggest easy and inexpensive methods for inculcating knowledge on tuberculosis. These meetings brought to light ingenious models of spittoons, and awoke private interest in the antituberculosis question.

The first number of the periodical belonging to the League saw the light in June, 1901, under the name "Revista de la Tuberculosis," which, a year afterward, was changed to the title of "La Lucha Antituberculosa." Last year it was changed again to "Alianza de Higiene Social." The periodical was distributed gratuitously to the adherents of the League, in the schools, libraries, mutual aid societies, hospitals, workhouses, and various asylums, and in the public buildings, etc.

In April, 1904, the Argentine League, by the presence of one of its prominent members in the Municipal Council, succeeded in getting an ordinance passed on the prevention of tuberculosis, which has been translated into various languages and has appeared in various periodicals. Recently the

Rivadavia Hospital (women). Tuberculosis pavilion.

Isolation Hospital (Muñiz). Consumptive patients' pavilion.



View of the sea-coast sanatorium.

League has had printed in leaflets popular instruction on tuberculosis, published by the German Imperial Sanitary Office, to the number of 100,000 examples.

As alcoholism is a powerful factor in the spread of tuberculosis, the League has carried on a great propaganda against alcohol, by leaflets, placards in public places, anti-alcoholic wall pictures in its dispensaries, and finally, at the beginning of 1907, presented to the National Congress a work on alcoholism in the republic, accompanying it with a bill for legislation on the matter.

Prevention in Infancy. Infants and Milk Dispensaries (Gouttes de lait). Creches. Infant Concourses (Baby Shows).

In 1891 the Municipal Intendency named a commission of doctors and statisticians, with the object of studying infantile mortality. The commission proposed the creation of a great institution with the name "Patronato de la Infancia," which occupies to-day first place in the country by its growth and great resources. This society founded in 1892 an infant and milk dispensary, such as came into existence many years later in France, under a different name. The origin of its creation then lies with the Argentine Republic. The "Patronato de la Infancia" has established free dispensaries for children's diseases, creches, a home for abandoned children of two to six years, a school for arts and artifices, and an agricultural industrial colony.

A daily paper of Buenos Aires, called the "Nacion," opened in 1905 a public subscription for the infants and milk dispensaries, which amounted to about 150,000 francs, and was given to the "Patronato de la Infancia." The "Public Assistance" created two milk dispensaries in the hospitals of "San Roque" and "Fernandez." The Municipal Council gave, in 1904, a subsidy of 1000 francs a month, to create an infant and milk dispensary for the purpose of supplying food to fifty children of the poor. This institution, created by Dr. Foster, is now permanent under the name of "Protection and Help to Infancy."

The League in February, 1907, submitted to the Municipal Council a bill which was accepted and is now in force. From this date all milk must be hygienized—that is, pasteurized, sterilized, maternalized, buddized, etc. Happily the laboratories in Buenos Aires are sufficient for the hygienization of about 350,000 liters daily.

The League has pointed out the benefits of scholastic canteens in the districts where the poorer classes predominate, remembering that many of the children have insufficient food. On the initiative of Dr. Genaro Sixto, medical inspector of schools, there has been established, in many of the public schools of the capital, the "cup of milk," similar to that which exists in

Switzerland, which may be considered as a forerunner of the scholastic canteen.

The Argentine League has also carried on propaganda for the holiday camps. One for 350 children of both sexes was founded in 1895 in Mar del Plata, by the National Council of Education, and one in 1902 by the Argentine League, under the title of the "Sommerpflege," for fifty children from seven to fourteen years, the offspring of tuberculous fathers who received assistance in the dispensaries. Lastly, a ladies' charity association has one holiday camp completed at the end of 1907.

In 1905 the Municipal Council, on the motion of Dr. Fernando Perez, sanctioned the creation of an agricultural colony with the name of Behring, and sufficient ground was acquired, but up to now nothing has come of it.

Commencing from January 1, 1903, the public service for disinfection carried the sanitary register of habitations. The number of sanitary files, corresponding one for each house, amounted to 16,328. Buenos Aires has nearly 100,000 houses, and yet only 16,328 are registered up to May 1, 1908. The municipal administration in 1907 began the construction of the workmen's houses in a great piece of ground ceded for that purpose by a generous philanthropist, utilizing the funds created by the ordinance of October, 1905. With the enlargement of the capital, its superficial area of 18,000 hectares, and its population of 1,150,000 inhabitants, and the facilities of locomotion given by its electric cars, many insalubrious houses have disappeared, and houses conforming to modern hygiene go on increasing in number, though there remains much to be done.

Street-cleaning. Hygiene of Public Premises.

The ordinance of April, 1902, forbade the sweeping of streets without previously sprinkling. To fulfil the same ordinance, there were fixed at street corners in the central parts of the city iron plates enameled with the superscription: "It is prohibited to spit on the sidewalks." Article 6 of the ordinance in question provides that: "In all houses and closed places frequented or inhabited by man; churches of whatever religion, schools and public and private colleges, hospitals, workhouses and asylums, barracks, workshops and mills, prisons, theaters, banks, hotels, furnished lodgings, cafés, apartments and blocks, halls and all places of business and public meetings, shall have spittoons on the floor or fixed in the wall, containing water or an antiseptic substance."

Obligatory Disinfection.

In September, 1892, there was passed a municipal ordinance to disinfect in all cases of contagious diseases, including pulmonary tuberculosis. The

Perspective view of the Doctor Rawson Dispensary.

public service of disinfection in Buenos Aires is very well organized. There are five disinfection stations and a personnel of 175 employees under the direction of a technical chief.

The notifications of pulmonary tuberculosis—that is, of invalids, deaths, or removal—are given by a very few doctors, by the Civil Registry, by the dispensaries of the Argentine League, and by two establishments—Isolation Hospital (Muniz) and the Dr. Tornú Municipal Sanatorium.

The statistics of the disinfecting service during the year 1907 give the following results: Deaths from pulmonary tuberculosis, 2115 persons, of whom 1149 died in the hospitals; that is to say, more than half of the tuberculous died in these establishments. The disinfecting service received 1764 declarations from various sources and intervened in 966 cases of death and 610 changes of domicile—a total of 1567 cases.

Hospitalizing and Isolation of the Pulmonary Tuberculous Patients.

Until the year 1891 patients affected with pulmonary tuberculosis were indiscriminately admitted to the common hospitals in Buenos Aires. The Directors of "Public Assistance" commenced, in the above-mentioned year, the provisional concentration of these invalids in the hospital for contagious diseases (Muniz). It is enough to record that 31 patients were assisted in 1891, while in 1905 the number had risen to 1126.

Of the 2115 deaths from pulmonary tuberculosis in the capital during the year 1907, 1149 of them were in the various hospitals, and two-thirds of these were in the Isolation Hospital.

Sea-coast Sanatoriums.

The "Revista de Higiene Infantil" made note of the absence of seaside sanatoriums for the treatment of weak, scrofulous children, predisposed to tuberculosis. "Sociedad de Beneficencia," in 1893, created in Mar del Plata, on the shores of the Atlantic Ocean, a seaside sanatorium, which has now capacity for 150 children of both sexes—the first created in Latin America.

Mortality from Tuberculosis in the Capital of the Republic.

In the ten years 1869–78 the death-rate from tuberculosis was 29.8 per 10,000 living; in the next ten, from 1879 to 1888, it was 26.3; from 1889 to 1898 it was 19.7; and from 1899 to 1907 it was 16.3.

The next table demonstrates the death-rate from tuberculosis during the last thirty years.

MORTALITY FROM TUBERCULOSIS IN THE FEDERAL CAPITAL DURING THIRTY YEARS (1878–1907).

Years.	Population.	Tuberculous Deaths.	Rate Per 10,000 Living.	Years.	Population.	Tuberculous Deaths.	Rate Per 10,000 Living.	Years.	Population.	Tuberculous Deaths.	Rate Per 10,000 Living.
1878	234,029	786	33.6	1888	455,167	1,098	24.1	1898	763,744	1,490	19.5
1879	257,440	804	31.2	1889	523,452	1,349	25.7	1899	795,323	1,675	21.1
1880	270,708	796	29.4	1890	547,144	1,255	22.9	1900	781,293	1,898	23.1
1881	289,925	805	28.0	1891	535,060	1,135	21.2	1901	848,367	1,893	22.3
1882	315,764	827	26.3	1892	554,713	1,181	21.3	1902	870,237	1,869	21.5
1883	340,375	953	28.0	1893	580,371	1,270	21.9	1903	895,381	1,919	21.4
1884	365,302	1,089	29.8	1894	603,012	1,419	23.5	1904	979,235	2,045	20.9
1885	384,492	1,042	27.1	1895	677,125	1,322	19.5	1905	1,025,653	2,145	20.8
1886	400,951	892	22.2	1896	721,095	1,368	19.2	1906	1,084,113	2,281	18.5
1887	437,875	1,066	24.4	1897	738,484	1,590	20.2	1907	1,129,286	2,394	19.2
Total		9,060	28.0	Total		12,987	21.9	Total		19,609	20.8

Examining the mortality from tuberculosis in the last ten years (1898–1907), we observe in those years very little difference, in fact, we might say that it is stationary, notwithstanding that Buenos Aires has reached a reduced general mortality (from 16 to 18 per thousand living). For complete success in the struggle against tuberculosis the improvement of the housing of the working-classes and of the sanitary conditions of theaters and churches, as well as of factories and shops; the multiplication of parks and playgrounds, gymnasiums, and baths; the widening of streets; the enforcement of a standard of healthful conditions in all occupations; the reduction of the working-day; the raising of wages; the education of women and girls of the tenements in the art of housekeeping and the science of food preparation; the crusade against the noxious features of the saloon; scientific instruction in the public schools on the evil effects of alcohol—all these tend to reduce the death-rate from tuberculosis.

The increased mortality from tuberculosis which occurred between 1869 and 1885 had already attracted the attention of the great Argentine hygienist, Dr. Rawson, who said in his memoir, presented in 1876, to the Medical Congress of Philadelphia, that Buenos Aires would see a diminution of mortality from tuberculosis, in consequence of the works of drainage and other hygienic improvements. The foresight of the wise hygienist has been vindicated. Tuberculous mortality has been diminishing in proportion as the general network of sewers and other works of drainage have been extended in the capital.

Front view of the Doctor Fernandez Dispensary.

Perspective view of the Doctor Tornú Dispensary.

The following table demonstrates the distribution of tuberculous mortality by sex and nationalities during a period of seven years (1901–1907):

Nationalities.	Male.	Female.	Total.	Rate of General Deaths, Per Cent.
Argentines	3,174	3,718	6,892	10.4
Italians	1,415	808	2,223	9.8
Spaniards	1,396	492	1,888	17.8
Uruguayans	271	240	511	24.9
French	323	154	477	9.8
English	50	27	77	7.6
Germans	41	27	68	10.8
Other nationalities	461	197	658	13.0
Totals	7,131	5,663	12,794	..

Attention is called in the preceding table to the numbers corresponding to the Spaniards and Uruguayans. The Argentine League, in its periodical, "Alianza de Hygiene Social," has revealed in various works that the Spanish race is specially predisposed to tuberculosis.

The following table reveals the distribution of mortality by sex in the Argentine and foreign colonies:

Years.	Argentines.		Foreigners.		Total.		General Total.
	Male.	Female.	Male.	Female.	Male.	Female.	
1901	429	451	534	261	963	712	1,675
1902	399	440	525	255	924	695	1,619
1903	384	507	520	278	904	785	1,689
1904	439	514	552	266	991	780	1,771
1905	476	602	549	287	1,025	889	1,914
1906	501	614	619	277	1,120	891	2,011
1907	546	590	658	321	1,204	911	2,115
Total	3,174	3,718	3,957	1,945	7,131	5,663	12,794

Studying the proportion of the sexes in the mortality from tuberculosis, we obtain the following results in the seven years 1901–1907:

		Died from Tuberculosis.	Per Cent.
Argentines	Men	3,174	24.8
	Women	3,718	29.1
		6,892	53.9
Foreigners	Men	3,957	30.9
	Women	1,945	15.2
		5,902	46.1

To better appreciate the above figures we give below the Argentine and foreign population, as recorded by the Municipal Census of 1904:

	Argentines.	Foreigners.	Total.
Minors of 15 years	303,690	28,939	332,629
From 16 to 50	201,354	306,524	507,878
From 51 years upward	17,997	92,387	110,384
	523,041	427,850	950,891

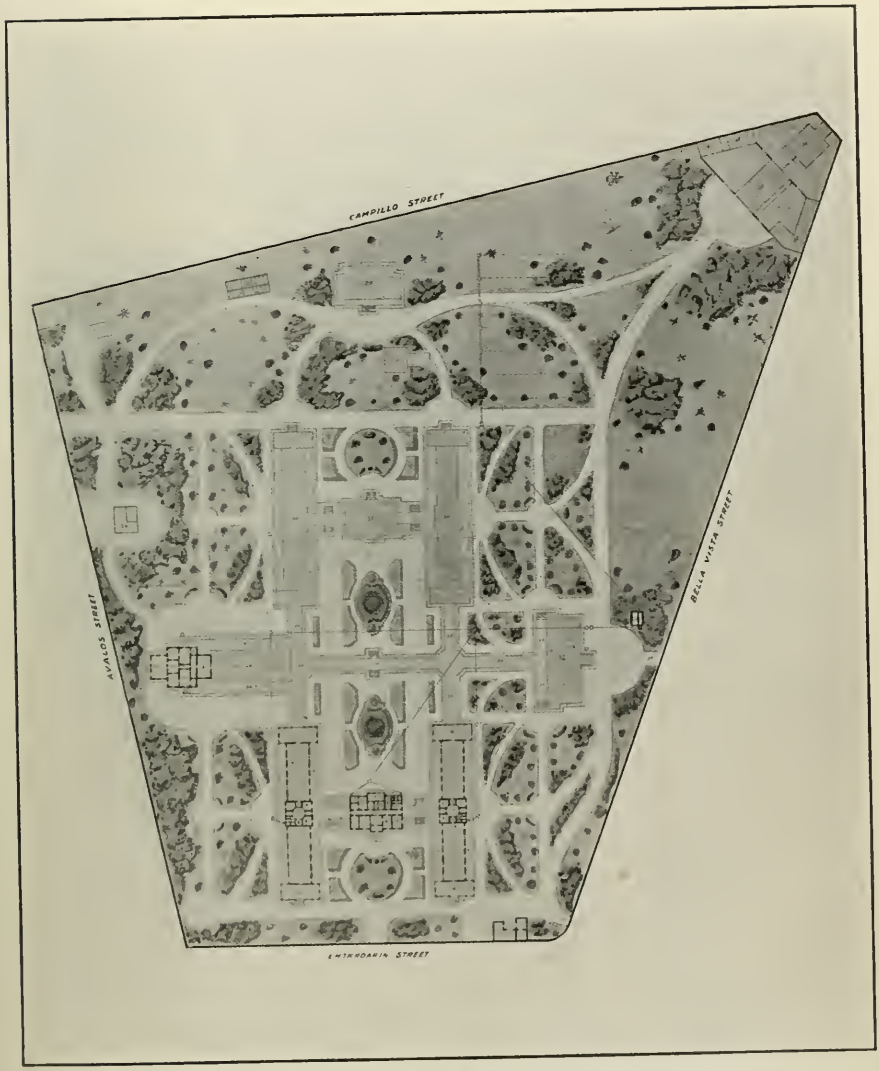
In the Argentines the tuberculous mortality of women is represented by 29.1 per cent., and only 24.8 per cent. in men. This difference is more apparent than real. The census of 1904 gave the Argentine population of fifteen to fifty years (the ages preferred for tuberculosis) 92,128 men and 109,227 women; that is to say, a preponderance of 17,099 women. Taking into consideration this discrepancy, it can be affirmed that tuberculous mortality is nearly equal in Argentine men and women. It is a fact that tuberculosis causes a greater mortality in men than in women (in general, about one-third more), because men, by their kind of work and habits of life, are more subject to the causes which produce tuberculosis.

For what reason, then, do the Argentines form an exception to the general rule? In Argentine men the use of alcohol favors in a high degree the spread of tuberculosis, but this cause cannot be taken into consideration when we treat of women of the same nationality. Of the women of Argentine nearly three-quarters more belong to the colored race, mixed races of Indian and white, or of white and negro—a condition very favorable for the disease. The Argentine colored women live under unfavorable conditions—bad food, bad houses, bad clothes, supporting a constant repetition of maternal duties; and if we add to these the circumstance of living in concubinage, there are found strong contrasting causes, which act on material naturally predisposed to phthisis.

The fact that the colored race is predisposed to tuberculosis has been clearly demonstrated by Dr. Azevedo Sodre in Brazil and by Mr. William H. Baldwin in the United States. Dr. Azevedo Sodre affirms that the statistics of mortality in Rio de Janeiro during the years 1903–1905 give the following results: Deaths from tuberculosis, 9560 persons, of whom 2277 were foreigners and 7283 national; of these, 3344 were white and 3929 of colored races; Africans not being included in this last number, but being considered as foreigners.

In Washington, from 7942 deaths from tuberculosis the statistics show in ten years (1897–1906) 3555 white and 4387 colored.

The death-rate from consumption under fifteen years of age, which is only 31.8 per 100,000 for the white population, is 246 for the colored—a rate con-



Plan of the Dr. Tornú Municipal Sanatorium.

siderably higher than is found at any age among the native-born whites of native parentage (Miss Lilian Brandt).

The tuberculous mortality classified by age gives the following table:

Age.	Argentines.		Foreigners.		Total.
	Male.	Female.	Male.	Female.	
Minors of one year	75	54	3	5	137
From 1 to 2 years	66	46	..	5	117
" 2 to 4 "	131	114	3	8	256
" 5 to 9 "	80	111	8	11	210
" 10 to 14 "	114	239	12	26	391
" 15 to 19 "	484	781	164	172	1,601
" 20 to 29 "	1,035	1,457	901	649	4,042
" 30 to 39 "	653	550	1,029	508	2,740
" 40 to 49 "	328	223	996	336	1,883
" 50 to 59 "	136	94	569	138	937
60 years and over	72	49	272	87	48
Total	3,174	3,718	3,957	1,945	12,794

Referring to age, this general rule is confirmed among us. In 12,794 deaths from pulmonary tuberculosis 10,266 are individuals of fifteen to fifty years of age.

Attention is called to the great difference in the Argentine male and female mortality, but the census of 1904 discloses a greater number of women than men, and for this reason the percentage of deaths is about the same.

It is to be observed also that in the ages between ten and thirty years the Argentine males figure with 1633 deaths, while the females have a mortality of 2477. This same fact has been put in evidence in New York by Miss Lilian Brandt in her work, "The Social Aspect of Tuberculosis, Based on a Study of Statistics."

In reference to the predominance of tuberculosis in the Spaniards, we record some statistical proofs. During the years 1901 to 1905 there entered the Muñiz Hospital 3125 tuberculous cases of both sexes. Of these, 1637 were Argentines, 562 Italians, 528 Spaniards, and 397 were of various nationalities. In the Dr. Tornú Municipal Sanatorium, from its foundation on March 12, 1905, to September 30, 1907, there entered 770 tuberculous men, among them being 331 Argentines. 192 Spaniards, 151 Italians, and 96 of divers nationalities. During the six years 1901 to 1906 there died in the federal capital, in consequence of tuberculosis, 6892 Argentines, or about 10.4 per cent. of the general mortality of the same nationality, 2223 Italians (9.8 per cent.), and 1888 Spaniards, or 17.3 per cent. To add still further proof to the high figure of tuberculosis corresponding to the Spanish race, we give in six years (1901–1906) the decease of 17,767 Italians, of whom 1883

were tuberculous, while the Spaniards, with a general mortality of 8785, had 1531 deaths from tuberculosis. If in the general mortality the Italian and Spanish colonies are represented proportionately to the respective population, it is not the same thing with tuberculosis.

The proportion of 17.8 per cent. of tubercular mortality corresponding to the Spaniards is only surpassed by the Uruguayans (24.9 per cent.).

This sensible difference, put in evidence between the Italian and Spanish colonies, the two most important races of our country, strikes one more forcibly having present the census of 1904, where the Italians figure with 228,556 inhabitants, while the Spaniards are only 105,206; that is to say, less than one-half of the Italians.

Dispensaries for Tuberculosis Patients.

One of the first objects which the Argentine League had in view was the creation of special dispensaries or clinics for the treatment of patients living at home (model Calmette-Malvoz). They projected also the creation of a popular sanatorium, soliciting for its construction the help of the State, by means of an animal lottery. But unfortunately the lottery authorized by the Congress gave only a net sum of $33,000. The funds were afterward used for the establishment of a model dispensary, which was inaugurated in September, 1903, and was named "Dr. Guillermo Rawson," in honor of the first Argentine hygienist. This dispensary served as an example for those which were created later in Rio de Janeiro and Montevideo. The League has two more dispensaries, "Dr. Tornú" and "Dr. Fernandez," and the three are situated among a large indigent population.

At the beginning of 1905 the municipality established the Dr. Tornú Municipal Sanatorium for men who have tuberculosis in its first stages, and it is inexplicable that they have not yet created a sanatorium for women and children.

The total number of beds for tuberculous cases in the three establishments (Muniz, Rivadavia, and the Dr. Tornú Municipal Sanatorium) is approximately 400—a number clearly insufficient for a population of 1,150,000 inhabitants. This explains why they still go on receiving pulmonary tuberculosis in some of the municipal hospitals, where there are no special facilities for caring for them.

Information Office for Tuberculosis.

At the beginning of 1907 the Argentine League organized an office of information for tuberculosis, with exactly the same purpose as that in Berlin directed by Dr. Kayserling. To this office go a great number of patients in search of assistance or simply for advice. According to their state or con-

Principal front, facing southeast.

Pavilion A.

Pavilion B.

dition, the patients are registered in the dispensaries of the League, or admitted to the Dr. Tornú Sanatorium if they are incipients, and to the Muniz or Rivadavia Hospital if they are found in a more or less advanced state.

The Doctor Tornú Municipal Sanatorium.

At the suggestion of the Argentine League, there was founded, at the end of 1904, by the then Director of Public Assistance, Dr. Edward Pena, the first popular sanatorium in Latin America. This sanatorium, under my direction, is situated in the high suburbs of Buenos Aires (Villa Ortuzar), and occupies a piece of ground in the form of an irregular polygon, surrounded by streets, and has an area of 72,000 square meters. It has accommodations for one hundred male patients. Its pavilions run from northwest to southeast. At each end there is a large hall (solarium), with ceiling of gypsum and sides of colored glass, and communicating with the wards and resting gallery. One of the halls serves as a dining-room and the other as a recreation-room. The two wards of the pavilion, containing twenty-four beds each, are united by covered corridors, having intersecting corridors leading to four separate rooms, viz., lavatory, bath-room, medical examination room, and attendants' room. The two pavilions are connected by means of a covered gallery with the administration building. In a pavilion separated from the rest of the building is to be found the culinary department and its appendages—distributing room, pantry, room for meat and vegetables, dining-rooms, etc. The patients' wards have been constructed on arches, one meter above the level of the ground, and the wards are surrounded by footpaths and ample gardens and parks. The ceilings of the wards have the form of an oval, with openings for the exit of air at the top and in the middle. The walls are coated with enamel up to two meters from the floor. The floors are of Venetian mosaic. The wide windows have bandrels at the top permitting easy ventilation.

The disinfection is done by steam under pressure (Fernand Dehaitre). Once a week it is operated for the disinfection of clothes, mattresses, bedlinen, underwear, elevated spittoons, etc. The monthly disinfection of the entire establishment is done by a gang sent by the public service.

Situated two leagues and a half from the capital, the Dr. Tornú Sanatorium has facilities of access by means of good paved roads and by electric trams to San Martin, the station being four squares (500 yards) from the establishment. The internal management has been copied from the more advanced European sanatoriums.

The assistance given by the Argentine League to the families of the patients in indigent circumstances permits them to have moral tranquillity, and also enables them to remain a sufficient time in the sanatorium.

The statistical results of the three years 1905 to 1907 demonstrate that incipient tubercular cases obtain a cure, or such a sensible improvement, that it permits them to regain what has been named the "economic capacity." Unfortunately the sanatorium is obliged to receive tuberculous patients in a period more or less advanced, sent by the "Public Assistance" when there are no beds free in the Muniz or Rivadavia Hospitals.

Animal Tuberculosis.

In October of the year 1900 the Argentine Republic passed its first law on animal sanitary police, and later introduced some modification. The Minister of Agriculture, in the Ganaderia department (cattle-breeding), has at his service 92 veterinarians and 150 special assistants. Imported oxen from abroad are put in quarantine for forty days, and animals imported from the provinces or neighboring countries for ten days. If no clinical tuberculous symptoms present themselves, they are submitted to a process of cutaneous-ophthalmo-dermo reactions.

SLAUGHTER-HOUSE OF LIGNIERES (FEDERAL CAPITAL).

Years.	Sacrificed.				Tuberculosis.					
					Steers.		Cows and Calves.		Pigs.	
	Pigs.	Steers.	Cows.	Calves.	Generalized.	Localized.	Generalized.	Localized.	Generalized.	Localized.
1898	36,128	308,622	128,032	100,251	343	333	298	312	..	1,160
1899	33,066	305,304	137,702	96,764	289	280	258	148	1,162	1,273
1900	37,824	321,068	131,443	63,023	423	257	364	155	959	2,420
1901	32,672	336,133	84,902	102,102	605	393	370	165	957	2,478
1902	38,185	287,378	109,432	97,459	475	149	384	70	1,133	2,992
1903	43,531	260,501	139,501	104,565	274	49	551	28	475	4,255
1904	41,577	274,745	126,107	92,249	267	80	416	63	375	3,881
1905	49,659	270,194	109,803	94,410	351	203	564	74	664	3,800
1906	54,524	264,731	120,437	107,731	300	537	521	203	563	2,563
1907	54,456	233,240	146,102	132,864	348	1,358	684	400	549	5,082
Totals	421,622	2,861,916	1,233,461	991,418	3,675	3,639	4,410	1,618	6,837	29,904

During the year 1907 there were imported from Europe 1799 bulls, of which 106 were sacrificed, having given reaction, disclosing tuberculosis at the autopsy. In 1906, 2753 bulls were imported, of which 227 were sacrificed, which is about 9 per cent. These reproducing animals have an individual value fluctuating between 1000 and 2000 national dollars.

In the interior of the country the official intervention depends on the common authorities. Thus, in all the capitals the milch-cows are tuberculinized. Animals are not admitted to the exhibitions from establishments where tuberculosis has been proved to exist.

In the slaughter-houses there is a service of veterinarians who do not permit the sale of animals attacked by generalized tuberculosis. That of the capital contains 21 veterinarians and 29 assistants, and a number of assistants for the investigations of trichina.

The proportion of tuberculosis in these special establishments was as follows in 1907:

	Slaughtered.	Tuberculous, Percentage.
Cold storage	553,673	1.010
Salting establishments	469,462	0.004

Tuberculization of Milking Cows.—The sanitary inspection of dairies in Buenos Aires has been in force many years, there being employed for this purpose six special veterinarians under the Sanitary Administration.

The official tuberculization of dairy cows was first established in 1896 in the city of Mendoza. A year afterward, in 1897, the sanitary authorities of the federal capital put in force a similar ordinance, making compulsory the tuberculization of the dairies of the capital. This example was imitated a short time after by the province of Buenos Aires, but unfortunately the measure was abolished, at the suggestion of the Argentine Rural Society. Until 1905 the "Public Assistance" consumed in its hospitals natural milk, and the first to employ pasteurized milk was the Dr. Tornú Municipal Sanatorium. Happily this practice has extended to all the municipal hospitals. Since the first of October, 1908, the hygienization of all milk consumed in the capital is obligatory.

In the dairies of the capital the statistics of tuberculosis for the last three years give the following results:

	Per Cent.
1905	18.81
1906	15.97
1907	17.00

Institute for the Observation of Milking Cows.—On the 12th of May, 1908, the Municipal Council sanctioned an ordinance for the foundation of an institute of observation for milch-cows, it being destined for the work of isolation, observation, and vaccination of these animals, with the purpose of proceeding with them in accordance with the laws now in force, if they be affected with tuberculosis or any other infectious disease, or immunized, if the proposed methods prove efficacious.

LA TUBERCULOSIS PULMONAR EN LAS CIUDADES DE GUAYAQUIL Y QUITO.

Dr. Carlo D. Saenz,

Professor en la Universidad Central, Quito.

La Tuberculosis, sobretodo la tuberculosis pulmonar, es frecuente en nuestras costas ecuatorianas y rara en las poblaciones interandinas; hecho que está en relación con la temperatura eugenésica óptima para la viabilidad del bacilo de la tuberculosis fuero del organismo (38°) y por tanto para la mayor facilidad de contaminación; y, en relación, también, con la diminución de microbios observada por muchos, en la admosfera de las grandes alturas y el aumento de glóbulos rojos en más de 500.000 por milímetro cúbico, para en eseas grandes altitudes, facilitando la oxigenación sanguínea, combatir la anoxiemia barométrica.

Tuberculosis en Guayaquil.

La hermosa ciudad de Guayaquil ocupa un plano horizontal de casi 2000 metros de ancho por 6000 más ó menos de longitud; al Norte limitan la ciudad unas pequeñas colinas que se dirigen de Este á Oeste; y hacia el Sur se extiende el mismo plano en un terreno cubierto de vegetación exuberante y algo más lejos de bosques intransitables de manglares; el río Guayas limita la ciudad al Este y el Estreo Salado al Oeste; Guayaquil está situado á los 82° 11′ 33″ Longitud 0. de París y á los 2° 12′ 0″ de Latitud Sur. El terreno sobre que descansa la ciudad es de formación marina, se eleva algo mas de un metro sobre el nivel del mar, y tanto por ser muy permeable, cuanto por estar casi rodeado de agua, esta se infiltra á tal extremo que en cualquier parte de la ciudad, basta cabar un metro de profundidad para que vierta el agua. La temperatura media de Guayaquil es de 27°5, siendo la máxima de 35° y la mínima de 18°. Los vientos dominantes tienen la dirección S. S. W. y S. S. E. en la estacion seca, y N. E. en parte de la estación lluviosa. La ciudad de Guayaquil, sinembargo, de tener un aire caliente y húmedo tiene buen clima y agradable, pues el aire fresco del mar y el que llega de las regiones andinas y la humedad de la admósfera, contribuyen poderosamente para que, especialmente en verano, jamás llegue el termómetro

á lo que debería llegar, en un pais casi situado en la línea equinoccial, y á poco menos de un metro sobre el nivel del mar.

La topografia de Guayaquil ha variado considerablemente de algunos años á esta fecha; pues, en parte por los grandes incendios que ha sufrido; y en otra por el adelanto progresivo natural de toda población, hoy la ciudad puede decirse redificada: posee calles muy anchas (20 metros) edificios espaciosos, bien airados y en toda la poblacion se observa bastante aseo, en una palabra, bastente higiene. La población de Guayaquil en el año de 1892, según el censo manifestado por el Dr. Holf, fué de 45000 habitantes; más el censo verificado en el año de 1899, fué, de 68,483.

La propagación de la tuberculosis en Guayaquil por el contagio también debe haber disminuido notablemente, pues hoy, el conocimiento de que es curable la enfermedad y de que es eminentemente contagiosa, está en al conciencia de toda persona en uso de razón, de modo que casi no hay individuo que no trate de cuidarse por medio del aseo y desinfección personal, que no trate de aislarse de los útiles &, &, de uso de sus enfermos y que no busque por cuantos medios de son permitidos y están á su alcance la manera de combatir su enfermedad, ya por la alimentación, ya por el cambio de clima, ya por el menor trabajo, ya por las prescripsiones medicamentosas.

Para el aislamiento de los tuberculosos existe en las afueras de la ciudad la casa de la "Convalecencia" edificio que funciona hace ya algunos años (desde 1902) con muy buen resultado, sinembargo el local es pequeño y por tanto insuficiente para el crecido número de enfermos existentes. Es indudable que tanto el Gobierno como el Municipio procupándose cual se debe de la necesidad que actualmente hay de separar los tuberculosos curables de los ya incurables y especialmente de aquellos que necesitan para su más pronta curación de un clima como el que nos ocupamos; digo, es indudable, que en breve se tratará de construir ya el Sanatorio Marítimo, ya el Dispensario antituberculoso que la situación exige.

Otro punto intimamente relacionado con la tuberculosis es el Alcoholismo y éste, á decir verdad, ha tomado gran incremento en el Litoral de nuestra República; crecidísimo es el número de cantinas, salones, clubs, &, &, en que se expenden licores de toda clase y condición, y habrá algo mas de experimentado y comprobado que el aumento considerable de tuberculosos debido al aumento de alcoholizados? No es para el trabajo compendiado de esta memoria el lugar de ocuparme en asunto tan suscintamente dilucidado por notables y muy ilustrados profesores; así, pues, no me detendré en disquisiciones acerca de cómo obra el *toxico alcohol* en los tejidos del organismo humano, para determinar la predisposición á la tuberculosis, ni tampoco cómo física y moralmente influye de manera eficaz el alcohol en la depauperación organica; nos limitaremos, pués, á decir que más que los trabajos corporales exagerados, más que el clima propio de esta ciudad tropical, es el alcohol

el factor principal en el acrecentamiento de la tuberculosis en Guayaquil; él el que da mayor número de predispuestos al contagio; porque Guayaquil es país laborioso, rico y muy filántropo y caritativo, allí nadie se muere de hambre, á ninguno le falta trabajo y trabajo bien remunerado; de manera que jamás se ven esos seres exaustos, demacrados, tísicos, en cuyos semblantes se pinta la necesidad con ojos escabados, de mirar suplicante; faz enjuta, pálida y terrosa: en una palabra esos seres que á diario se presentan en las grandes poblaciones, esqueletados casi sin vida; y, por fuerza, candidatos para toda clase de enfermedades y de crímenes.

En nuestra República está todo por hacerse respecto á lucha anti-alcoholica; no hay una sola liga contra el alcoholismo, no hay una reglamentación satisfactoria para la elaboración ni para el espendio de bebidas alcohólicas y fermentadas. Como medidas de represión nos contentamos con el hecho de que conste en nuestro Código Penal, la embriaguez, como contravención de 4*a* clase y multa de $8 á $20 y de tres á siete días de prisión, ó una de estas penas. El Gobierno debía establecer un impuesto á la elaboración tan fuerte que efectivamente contribuya para que el ébrio consuetudinario deje de serlo por imposibilidad pecuniariaó, en sentido opuesto, que los productores en vista de su pequeñísima utilidad, se dediquen á otro género de negocios más lucrativos. La prisión por embriaguez debia ser tal que en verdad corrija; y, en vez de siete días debia someterse al ébrio á una clausura de dos á seis meses. El número de cantinas & & donde se vende licores debía reglamentarse de manera que no pueda haber sino cierto número en relación con la densidad de la poblacion; pues mientra mayores facilidades existan para establecer ventas de licores, habrá mayor número de cantinas, mayor incitación y mayor número de ébrios; en Francia cuando el número de puestos de venta era limitado, hubo en el año de 1865: 351.048 tiendas de licores; en el año de 1875: 342.622; y derogada esa ley, hubo: en 1885, 399.145; en 1895: 424.575, y en el año de 1897: 425.507 cantinas & & ! Por último toca á nuestras autoridades, á nuestros Concejos escolares &, intervenir en la lucha contra la tuberculosis, de modo decisivo, por medio de conferencias, concejos, medidas higiénicas & contra el alcoholismo, factor principal de la tuberculosis en nuestro país.

Tanto en Guayaquil, como en todo el Litoral, la tuberculosis no respeta edad, sexo ni raza; pero sí conviene hacer presente que de modo general es en la raza indígena en la que se observa el mayor número tuberculosos; y, por lo que toca á la edad y al sexo, la enfermedad ataca, preferentemente, á los indivíduos relativamente jóvenes de 18 á 35 años y al sexo masculino.

Tuberculosis en Quito.

La Provincia de Pichincha se extiende en una superficie de 16, 106 Kl. cuadrados; limita al Norte. por la Provincia de Imbabura; al S. con la

de Leon; al E., con la Región Oriental; y, al O. con Esmeraldas y Manabí; su suelo es muy irregular y montañoso; tiene 48 parroquias que constituyen tres Cantones: el de Cayambe, al Norte; el de Quito, al Centro y el de Mejía, al Sur. Quito es la Cabecera del Cantón, la Capital de la Provincia y la Capital de la República: ciudad de segundo orden en América y de tercero en Europa; está situada en las faldas del Pichincha sobre una colina que da al Oriente y bajo la posición astrónómica de 0° 14′ 34″ de latitud Sur (Wolf) y en la longitud de 81° 4′ 38″ (Humboldt). Por el lado Sur, domina á Quito el cerrito de Panecillo, de forma cónica y que se eleva á 200 m. sobre la plaza mayor; y á 3121m. sobre el nivel del mar; además rodean á la ciudad las colinas de la Chilena, Ichimbia y Puengasí.

El suelo sobre que está edificada la ciudad es, como ya hemos dicho, muy irregular y para convencerse basta considerar que la altura en la parte occidental es de 2610m. sobre el nivel del mar; que la oriental es de 2923m. y que el la plaza mayor la elevación es de 2850m. (Wolf) (Lacondamine da para la plaza mayor 2865m.) que está en las faldas de una montaña y que atraviezan por su suelo dos profundas quebradas, de manera que fue necesaria la gigantesca obra de levantar dos series de arcos elevadísimos para sobre ellos edificar la ciudad; sinembargo las calles longitudinales son bastante planas. La Chorrera del Pichincha situada á bastante altura sobre la ciudad surte á ésta de buena agua potable y en suficiente cantidad, en nuestro concepto, pero por falta de algibes y de una instalación adecuada; es muy poca la cantidad de que durante el día aprovechan los pobladores y durante la noche toda se desperdicia, pues se vierte exclusivamente en las quebradas. Si se construyeran algibes grandes, para colectar en ello parte del agua ya mencionada, el aseo de la población sería muy fácil, pues con solo las dos grandes quebradas que atraviesan por la ciudad, sería muy fácil completar la canalización de esta y al dar salida al agua de los algibes, en gran masa, el aseo de la ciudad seriá completo, pues estará servida la población con el agua contenida en los otros algibes propios para ella y para la distribución á domicilio.

El sistema hidrográfico de Quito está formado por varios riachuelos venidos del Atacazo, los cuales, en la parte austral de Quito, en el plano de Turubamba, se reunen y constituyen el rio Machángara, éste pasa por las afueras de la ciudad y á su paso recibe el agua de algunas quebradas del Pichincha.

La pesión barométrica en Quito es de 547.00 milímetros, término medio del conjunto de las observaciones tomadas en el Observatorio de la Capital.

La diferencia de oscilación barométrica entre el máximo que corresponde á las 8 y 9 de la mañana, la oscilación media que corresponde á las 12 y 1 de la tarde, y la de la noche que es semejante, es sólo de menos de 4 milímetros, lo cual hace Quito goce de una presión barométrica muy poco variable.

El viento que sopla en Quito es por la mañana constantemente de Sur á Norte; y por la tarde con igual regularidad, de Norte á Sur. En tesis general puede decirse que el aire que se respira en Quito es por la mañana frío y seco, y por la tarde frió y algo húmedo.

Meses.	Año.		
	1878–1879.	1879–1880.	1880–1881.
	Cantidad de Lluvia.	Cantidad de Lluvia.	Cantidad de Lluvia.
Octubre	M. 0,1356	M. 0,0881	M. 0,0878
Noviembre	" 0,823	" 0,1349	" 0,0666
Diciembre	" 0,0538	" 0,0859	" 0,0984
Enero	" 0,0943	" 0,0694	" 0,0698
Febrero	" 0,0668	" 0,1195	" 0,0648
Marzo	" 0,0630	" 0,1512	" 0,1075
Abril	" 0,1945	" 0,1138	" ..
Mayo	" 0,1312	" 0,0975	" ..
Junio	" 0,0630	" 0,0198	" ..
Julio	" 0,0328	" 0,0066	" ..
Agosto	" 0,0460	" 0,0853	" ..
Setiembre	" 0,0470	" 0,0478	" ..
Suma	" 1,0103	" 1,0198	" 0,4949

Meses.	Año.					
	1878–1879.		1879–1880.		1880–1881.	
	Días de Llva.	Tempt.	Días de Llva.	Tempt.	Días de Llvo.	Tempt.
Octubre	11	8	18	16	19	16
Noviembre	5	5	17	9	10	8
Diciembre	6	5	16	7	21	14
Enero	18	10	11	8	12	7
Febrero	8	8	17	5	14	10
Marzo	17	4	23	14	11	3
Abril	28	21	22	17	..	..
Mayo	19	18	22	12	..	..
Junio	11	11	9	3	..	..
Julio	7	4	5	3	..	..
Agosto	8	3	14	10	..	..
Setiembre	9	4	10	4	..	..
Suma	147	111	184	108	87	58

Quito goza de dos estaciones: la de verano ó sea la estación seca, durante los meses de Junio hasta Noviembre; y la de invierno; la húmeda, desde Noviembre hasta Mayo, época esta última en la que con frecuencia caen fuertes tempestades de rayos y granizo, en la cual el ambiente se encuentra muy ozonizado. Sinembargo de que existe la estación, no por esto se crea que

rigurosamente dejande llover en Verano; pues en Quito se puede afirmar que no hay mes en el que no llueva algo.

He aquí resumen de la cantidad de lluvia en Quito, y por el cual se ve que no hay exageración al decir que en ningún mes deja de llover.

Por lo general las mañanas son hermosisimas, el cielo muy alegre y la admósfera pura y despejada completamente hasta las 12 ó 3 de la tarde, hora en que frecuentemente llueve, pero llueve á cantaros, de manera que las calles por la natural inclinación del terreno se convierten en correntosos ríos que arrastran á su paso cuanto encuentran, mäs esto dura poco, se restablece la calma y luego queda el piso seco, limpio, y biene á presentarse el hermosísimo cuadro de la puesta del sol tras las elevadas montañas de la Capital.

Fuera de lo dicho es necesario hacer presente que la ciudad de Quito se encuentra rodeada de bosques de Eucaliptus, bosque que, como alguien dijo, son los pulmones de las ciudades.

El calor propio del Globo Terrestre es producido por el equilibrio que existe entre el calor que envía el Sol, que es para la tierra de 1200 quintillones de calorías por año, más el calor de irradiación del centro de la Tierra que es de 1.36; y el frío interestelar que es de 100° á 120° bajo cero. Este calor propio del globo terrestre está repartido en proporción decreciente en tres zonas paralelas, y son: la Tórrida, comprendida entre los trópicos de Cáncer y de Capricornio; la templada, desde estos trópicos hasta los círculos polares; y, de estos círculos hasta los polos, la zona fría

El Ecuador, estando comprendido entre 2° de latidud Norte, y 6° de latitud Sur, está bajo la linea equinoccial, es un país tropical y por tanto corresponde á la zona tórrida; pero debido á las distintas alturas en las que se encuentran situadas sus principales ciudades, se halla en éstas los climas correspondientes á muy distintas zonas. Quito descansa sobre un subsuelo volcánico y seco, domina el valle de Chillo que está á 2500m. sobre el nivel del mar; el valle de Tumbado á 2390m. hacia el Norte de la llanura de Cotocollao á 2802m, y por la parte Austral, su meseta se continúa con el plano de Turubamba, que tiene la altura de 2900m., Quito es, pues, la más elevada de nuestras ciudades interandinas, y sinembargo, su temperatura media es sólo de 13.5° siendo de notarse que la temperatura media de Quito ha descendido durante el transcurso de algunos años, pues, Humboldt en el año de 1802 da para Quito la temperatura de 15°.6 (véase en la tabla isotérmica el número 384 de la obra Kleinnere Schriften de Humboldt) los Srs. Hall y Salaza, en los años de 1825á 1828, dan la temperatura de 15° 5; Bousingault, en 1831, señala la temperatura media de 15° 2; Salaza en 1831, durante los meses de Setiembre á Octubre, haciendo cuatro observaciones diarias, á obtenido la temperatura de 15°5, más los geólogos Reiss y Stubel, en los años de 1870 á 1874, dan la enorme diferencia de 2° 2; lo cual parece un hecho indudable, puesto que en el lapso de dos años, desde Octubre de 1878 hasta

Marzo de 1881, haciendo tres observaciones por día, el resultado de la temperatura media fue de 13° 5, como puede verse en el cuadro adjunto y temperatura que está en igualdad con la observada posteriormente, hasta hace poco por los Srs. Wickman y Gonnesiat:

TEMPERATURA DE QUITO.

Meses.	Años.		
	1878–1879.	1879–1880.	1880–1881.
	Término Medio Máximo y Mínimo Diario.	Término Medio Máximo y Mínimo Diario.	Término Medio Máximo y Mínimo Diario.
Octubre	14°.03	13°.47	13°.18
Noviembre	13°.86	13°.80	13°.61
Diciembre	13°.44	14°.19	13°.43
Enero	13°.19	15°.10	13°.38
Febrero	13°.60	13°.74	12°.61
Marzo	12°.83	13°.94	13°.47
Abril	12°.84	14°.00	....
Mayo	14°.13	14°.55	....
Junio	13°.79	14°.46	....
Julio	13°.02	14°.51	....
Agosto	13°.91	13°.20	....
Setiembre	13°.74	13°.79	....
Término medio anual	13°.53	13°.07	13°.26

Termino medio general.....13°.5

TEMPERATURA DE QUITO.

Meses.	Años.		
	1878–1879.	1879–1880.	1880–1881.
	Término Medio de Tres Obs. al Día.	Término Medio de Tres Obs. al Día.	Término Medio de Tres Obs al Día.
Octubre	13°.88	12°.65	12°.79
Noviembre	13°.80	13°.23	13°.42
Diciembre	14°.12	13°.44	13°.28
Enero	15°.10	14°.37	13°.40
Febrero	13°.89	14°.14	13°.08
Marzo	12°.86	13°.90	13°.66
Abril	12°.92	13°.41	....
Mayo	13°.46	13°.71	....
Junio	12°.68	13°.82	....
Julio	12°.46	13°.54	....
Agosto	13°.18	13°.03	....
Setiembre	13°.05	13°.22	....
Término medio anual	13°.19	13°.63	13°.27

Termino medio general.....13°.5

La temperatura de Quito corresponde en la clasificación climatérica de M. Levi á un clima templado, en la de Rochard, también á un clima templado y en la clasificación mèdica á un clima exitante y tónic.

Otro de los factores cuyo estudio es indispensable al tratar del clima de una ciudad en relación con la tuberculosis, es el aire que se respira, sus condiciones de mayor ó menor pureza y su composición quimica.

Quito no tiene en sus immediaciones ninguna localidad en que se produzcan miasmas capaces de envenenar el aire de la ciudad; Quito debido á la natural inclinación irregular del terreno sobre que está edificada la ciudad, es impropio, para que se estanquen y corrompan las aguas lluvias, sin que por esto se desconozca que la falta de abundante y buena distribucion de agua potable á domicilio, sea motivo para que el desague de las casas sea imperfecto. En cuanto á la densidad de la población en la ciudad de Quito está en perfecta harmonía el número de sus habitantes con el área edificada; sus pobladores viven muy holgadamente, lo cual es muy natural puesto que sus casas, por lo general, son de sólo dos pisos, grandes con habitaciones espaciosas, extensos patios y muchas con huerto. Quito posee todas sus calles bien empedradas; asi, pues, no se puede decir que existe ese polvo, en verdad muy nocivo, que circula en las ciudades que carecen de empedrado. En Quito, por desgracia para las industrias, hay carencia exesiva de establecimientos fabriles, y las pocas fábricas que existen están situadas en las afueras de la población; y, por lo que toca á los vientos, ya lo indicamos en otro lu gar.

De todos los elementos que constituyen el aire que respiramos, es al oxígeno el elemento indispensable para la vida y, luego, la carencia de microorganismos, de gérmenes patógenos; estos microbios, es natural asegurar, que en la admósfera de la población de Quito, se encuentran en muy escaso número; pues un hecho por demás probado es el de que á mayor altura, menor número de microbios exista, razón por la que los lugares montañosos, de granaltura, tienen mucha ventaja y superioridad en cuanto á clima y curabilidad de ciertas dolencias sobre las localidades bajas y sobre todo populosas; sería largo enumerar aquí lo mucho que se ha escrito al respecto, baste con manifestar que el Sr. Miquel en el aire de la calle de Rivoli, en París, encontró la cantidad de 55.000 bacterias por metro cúbico; en Thouneá, 560 m. 600 bacterias; y sobre 2000, 0; Freudenreich á 2100 metros no encontró ningún esquizomiceto; por último Jean Binot, en el agua del Monte Blanco, á 2500 metros de altura, encontró 8 bacterias por centímetro cúbica; y, en el agua del Sena: 4,325,000, por centímetro cúbico.

Ahor, pues, por deduccion se debe colegir que el aire y el agua de la ciudad de Quito tiene que ser relativamente muy pura, toda vez que esta población se halla situada á 2850 mt. sobre el nivel del mar.

Aún no se ha practicado un análisis circunstanciado de la composición química del aire de la ciudad y de las cercanías de Quito, más, también se

debe deducir, por analogía, que los elementos secundarios se encontrarán en la correspondiente proporciön; así, pues, se encontrarán el ácido carbónico, el argón, el vapor de agua, los carbidos de hidrógeno, los nitratos y nitritos &, &, solo sí que el ozono con frecuencia se verá aumentado por ser, tambien, frecuentes las tempestades en esta región andina; y, por lo que hace á la proporción de oxígeno, éste, indudablemente será de 21,4, toda vez que ésta es la proporción dad por el análisis del profesor Caillete, quien para sus análisis tomó el aire con un globo sonda á la altura de 15,500 mt. Se dira que el aire que introducimos en nuestros pulmones en la ciudad de Quito tiene menor cantidad de oxígeno por causa de su mayor rarificación? y que la sangre ha perdido parte de su poder de fijación del oxígeno por causa de la falta de presión atmosférica? Cierto que así debe pasar, pero también se debe tener en cuenta que la Naturaleza, previsora cual ninguna otra para la conservación de los seres vivientes, ha hecho que los fenómenos de la respiración pulmonar y los de ventilación sean en estas alturas mucho más rápidos, hasta la aclimatación del individuo, es decir hasta que el número total de los glóbulos rojos, se encuentre debidamente aumentado, á fin de que no se presenten los fenómenos propios de la anoxemia barométrica; aqui los experimentos de los Srs. Egger y Mercier, quienes han comprobado que la sangre aumenta en sus glóbulos rojos de 1.500,000 transcurridos siete meses de vivir á la altura de 1,882 mt. y todavía más, las observaciones del profesor Viault, que puso de manifiesto que el número de glóbulos rojos de la sangre tenía un aumento de 500.000 por míl. cúbica en el hombre que vive á la altura de 2,850 mt. en el Pic du Midi, es decir, á una altura igual á la de Quito, de donde resulta que el habitante de esta Capital, comparado con el habitante de nuestras costas, tiene, por lo menos, 5,000.000.000.000. de aumento de glóbulos rojos y por tanto, en la función de la oxigenación, compensa la falta de presión, el enrarecimiento del aire y la menor aptitud para la fijación del oxígeno.

Por todo lo que llevamos expuesto, creemos que, cualquiera que se detenga en leer lo hasta aqui manifestado, podrá darse cuenta cabal de la bondad del clima de Quito y de los buenos resultados que aquí puede obtenerse en la curación de la tuberculosis pulmonar; buenos resultados que los veremos cunplidos poco despúes que se encuentre en servicio público la monumental obra fundada por la Sociedad de Beneficiencia Olmedo, el Sanatorio Rocafuerte, y obra de la que luego nos ocuparemos más detenidamente; para terminar cual se debe con lo relacionado acerca del clima de Quito, reproduciremos las palabras del Sr. Orton, quien tratando del Ecuador, en su obra "Andes y Amazonas" dice: "El viajero se encanta al ver aquellas praderas que se dilatan en las costas y, sobre todo, al ver aquella alfombra de perpetua verdura en que reposa Quito, alfombra más hermosa talvez que la de los ondeantes jardines de Babilonia. El clima es sumamente delicioso, y la hermosa Italia, con todos los hechizos de su cielo, queda muy atrás. Si los antíguos hubieran conocido estos valles de la cordillera andina, habrían

colocado en ellos los Campos Elíseos y el resueño asiento de la vida larga, feliz y bendecida, soñada por Anacreonte.

No se crea que por lo que llevamos dicho, suponemos que en Quito no existe la tuberculosis, nó; las estadísticas de hace treinta años nos manifiestan lo contrario, pero sí nos prueban con toda evidencia, que la tuberculosis, especialmente, la pulmonar, ha tomado gran incremente, sobre todo en estos últimos años, cosa explicable desde el momento que, hace muy poco se toman medidas profilacticas, que hace poco se propaga la idea de contagio, que el contagio por las relaciones con tuberculosos venidos de las costas tienen que haber aumentado en relación directa con el aumento de indivíduos enfermos que á diario viene en busca de mejor clima dadas las mayores facilidades que, por ventura, hoy existen para la traslación; y que por último, debido á un grave descuido, la declaración obligatoria de la tuberculosis y la consiguiente desinfección, &, &, existen como ley desde hace muy poco tiempo pero ley que en verdad aún no se lleva á efecto.

La estadística de la tuberculosis que presentamos á continuación, es tomada de la única fuente posible en esta ciudad, des Hospital, siendo de notarse que ella solo pueda datar del año 1871, época en la que por vez primera, con la venida de las Hermanas de la Caridad, se comenzo á llevar y compilar los libros estadísticos correspondientes á los enfermos que ingresaban y á sus respectivas dolencias; también conviene advertir, que aún estos datos son deficientes respecto á la tuberculosis, pues los diagnósticos inscritos, casi siempre, por los Srs. estudiantes, señalan con el nombre de *"afección pulmonar,"* casos de tuberculosis que hoy tienen que figurar como casos dudosos; además, siendo como es frecuente el hecho de presentarse en el decurso de una tuberculosis, una pneumonía una bronquitis ó una grippe, también añadimos la estadistica correspondiente á estas enfermedades; hela aquí:

PERÍODÍ DE DIEZ AÑOS (DE 1871 AL 1880), SEGÚN EL SEXO.

Años.	Tuberculosis.			Bronquitis.			Pneumonia.			Grippe.	Total de Hsp.
	H.	M.	†	H.	M.	†	H.	M.	†		
1871	10	6	1	89	19	2	45	18	3	39	2.042
1872	8	3	1	118	8	5	48	19	3	10	2.549
1873	17	2	8	96	5	3	62	19	7	15	2.466
1874	13	4	7	78	23	6	72	33	13	21	2.570
1875	13	6	8	81	26	12	46	26	23	22	2.492
1876	19	4	5	73	16	6	44	33	20	45	2.177
1877	16	5	5	158	18	8	61	33	17	26	3.442
1878	19	9	7	184	29	8	66	30	21	29	3.723
1879	22	14	4	216	20	9	43	26	13	43	3.603
1880	28	6	8	222	39	27	61	25	20	38	3.803
Total	165	59	54	1315	203	86	548	262	140	288	28.927
Total general	224			1518			810			288	3840

PERÍODO DE 10 AÑOS (1871 Á 1880), SEGÚN EL ESTADO.

Años.	Tuberculosis.			Bronquitis.			Pneumonia.		
	Soltero.	Casado.	Viudo.	Soltero.	Casado.	Viudo.	Soltero.	Casado.	Viudo.
1871	10	5	1	64	32	12	39	21	3
1872	7	2	2	77	42	7	29	33	5
1873	10	6	3	57	40	4	35	38	8
1874	9	7	1	46	43	12	48	44	13
1875	13	5	1	46	38	23	25	35	12
1876	10	9	4	44	37	8	27	37	13
1877	10	8	3	99	72	5	44	43	7
1878	14	12	2	108	101	4	46	46	4
1879	20	15	1	116	105	15	31	33	5
1880	13	18	3	122	114	25	37	35	14
Total	116	87	21	779	624	115	361	365	84
Total general	224			1,518			810		

PERÍODO DE 10 AÑOS (1871 Á 1880), SEGÚN LAS RAZAS.

Años.	Tuberculosis.				Bronquitis.				Pneumonia.			
	Blan.	Neg.	Ind.	Mez.	Blan.	Neg.	Ind,	Mez.	Blan.	Neg.	Ind.	Mez.
1871	4	..	..	12	39	7	9	53	14	1	7	41
1872	4	1	..	6	34	7	8	77	24	1	6	36
1873	6	4	3	6	32	9	7	53	26	3	13	39
1874	6	1	2	8	34	4	9	54	31	6	11	57
1875	11	2	1	5	44	6	12	45	26	6	8	32
1876	5	3	3	12	28	5	8	48	27	2	8	40
1877	5	2	1	13	33	9	1	133	19	4	2	69
1878	6	1	2	19	37	8	7	161	19	3	10	64
1879	7	2	7	20	75	12	4	145	17	5	7	40
1880	5	2	5	22	79	4	17	161	18	1	18	49
Total	59	18	24	123	435	71	82	930	221	32	90	467
Total general	224				1,518				810			

PERÍODO DE 10 AÑOS (1871 Á 1880), SEGÚN LAS EDADES.

Edades.	Tuberculosis.	Bronquitis.	Pneumonia.
De 0 á 9 años	2	14	13
" 10 á 19 "	18	235	100
" 20 á 29 "	77	663	242
" 30 á 39 "	60	266	172
" 40 á 49 "	30	118	120
" 50 á 59 "	18	77	66
" 60 á 69 "	13	87	57
" 70 á 79 "	5	50	31
" 80 á 89 "	0	7	7
" 90 á más	1	1	2
Total	224	1518	810

PÉRÍODO DE 10 AÑOS (1881 Á 1890), SEGÚN EL SEXE.

Años.	Tuberculosis.			Bronquitis.			Pneumonía.			Grippe.	Total de Hosp.
	H.	M.	†	H.	M.	†	H.	M.	†		
1881	27	6	7	153	36	19	61	37	21	18	3.316
1882	24	5	5	269	45	38	85	68	58	90	3.549
1883	29	5	12	126	60	19	59	32	26	52	2.906
1884	36	9	10	133	54	29	68	37	32	46	3.210
1885	42	18	14	107	30	14	69	27	25	31	3.571
1886	31	9	13	118	37	11	55	26	16	23	3.272
1887	28	12	6	123	40	15	71	31	22	75	3.437
1888	38	10	11	116	32	19	62	34	24	78	3.809
1889	37	20	17	158	32	21	81	53	40	179	4.265
1890	45	19	12	180	38	22	82	28	24	365	4.265
Total	337	113	107	1483	404	207	693	373	288	957	36.163
Total grl.	450			1,887			1,066			957	36,163

PERÍODO DE 10 AÑOS (1881 Á 1890), SEGÚN EL ESTADO.

Años.	Tuberculosis.			Bronquitis.			Pneumonia.		
	Soltero.	Casado.	Viudo.	Soltero.	Casado.	Viudo.	Soltero.	Casado.	Viudo.
1881	6	26	1	79	96	14	37	46	15
1882	10	18	1	118	166	30	50	77	26
1883	10	22	2	65	85	36	29	44	18
1884	16	25	4	68	80	39	39	50	16
1885	25	32	3	63	49	25	31	44	21
1886	20	15	5	68	71	16	25	40	16
1887	17	18	5	63	74	26	29	49	24
1888	18	25	5	66	55	27	24	50	22
1889	23	27	7	104	65	21	58	52	24
1890	27	32	5	95	87	36	38	57	15
Total	172	240	38	789	828	270	360	509	197
Total general	450			1,887			1,066		

PERÍODO DE 10 AÑOS (1881 Á 1890), SEGÚN LAS RAZAS.

Años.	Tuberculosis.				Bronquitis.				Pneumonia.			
	Blan.	Neg.	Ind.	Mez.	Blan.	Neg.	Ind.	Mez.	Blan.	Neg.	Ind.	Mez.
1881	9	6	1	17	53	3	18	115	19	1	20	58
1882	8	0	4	17	97	5	37	175	35	3	26	89
1883	7	5	4	18	46	2	18	120	23	1	18	49
1884	10	0	5	30	37	0	14	136	15	3	15	72
1885	13	6	8	33	39	6	18	74	16	4	20	56
1886	10	0	5	25	24	6	12	113	14	2	11	54
1887	14	0	7	19	30	3	10	120	17	1	17	67
1888	10	1	3	34	18	8	12	110	5	0	11	80
1889	9	1	1	46	36	7	0	147	12	1	1	120
1890	10	0	1	53	59	8	0	151	13	3	1	93
Total	100	19	39	292	439	48	139	1261	169	19	140	738
Total general	450				1,887				1,066			

PERÍODO DE 10 AÑOS (1881 Á 1890), SEGÚN LAS EDADES.

Edades.	Tuberculosis.	Bronquitis.	Pneumonia.
De 0 á 9 años	11	49	14
" 10 á 19 "	34	211	97
" 20 á 29 "	132	524	238
" 30 á 39 "	136	402	260
" 40 á 49 "	77	238	194
" 50 á 59 "	28	136	106
" 60 á 69 "	22	184	98
" 70 á 79 "	7	100	31
" 80 á 89 "	3	34	26
" 90 á más	0	9	2
Total	450	1,887	1,066

PERÍODO DE 10 AÑOS (1891 Á 1900), SEGÚN EL SEXO.

Años.	Tuberculosis.			Bronquitis.			Pneumonía.			Grippe.	Total de Hosp.
	H.	M.	†	H.	M.	†	H.	M.	†		
1891	43	13	8	118	28	9	89	36	32	110	3.840
1892	56	15	22	128	20	13	65	32	22	355	3.726
1893	74	30	22	85	23	8	72	55	23	360	4.266
1894	75	37	20	103	17	8	73	34	9	269	4.258
1895	75	45	16	126	18	11	177	52	32	488	5.402
1896	58	16	10	90	16	8	89	50	25	204	4.185
1897	34	14	8	19	15	6	40	26	12	83	2.572
1898	55	17	19	59	12	7	84	26	12	181	3.016
1899	84	24	8	34	19	1	142	37	10	248	3.140
1900	75	13	5	29	20	7	219	39	16	567	3.993
Total general	853			979			1,437			567	3,993

PERÍODO DE 10 AÑOS (1891 Á 1900), SEGÚN EL ESTADO.

Años.	Tuberculosis.			Bronquitis.			Pneumonia.		
	Soltero.	Casado.	Viudo.	Soltero.	Casado.	Viudo.	Soltero.	Casado.	Viudo.
1891	24	27	5	61	70	15	31	77	17
1892	34	30	7	62	60	26	29	54	14
1893	40	50	14	43	53	12	46	66	15
1894	52	51	9	55	46	19	45	48	14
1895	65	43	12	71	61	12	114	78	37
1896	34	32	8	63	33	10	65	55	19
1897	13	30	5	17	13	4	21	36	9
1898	26	37	9	38	30	3	45	46	19
1899	73	30	5	22	23	8	109	60	10
1900	56	25	7	27	15	7	186	51	21
Total	417	355	81	459	404	116	691	571	175
Total general	853			979			1,437		

PERÍODO DE 10 AÑOS (1891 Á 1900), SEGÚN LAS RAZAS.

Años.	Tuberculosis.				Bronquitis.				Pneumonia.			
	Blan.	Neg.	Ind.	Mez.	Blan.	Neg.	Ind.	Mez.	Blan.	Neg.	Ind.	Mez.
1891	6	4	0	46	24	6	0	116	22	3	6	94
1892	7	3	0	61	27	10	1	110	10	0	0	87
1893	14	0	0	90	13	1	1	93	10	1	1	115
1894	10	2	2	98	24	1	0	95	12	1	1	93
1895	8	6	1	105	20	5	5	114	17	15	12	185
1896	12	9	9	44	11	10	7	78	9	4	17	109
1897	7	0	5	36	0	2	8	24	3	0	15	48
1898	2	1	1	68	4	2	0	65	2	1	6	101
1899	3	0	0	105	1	0	0	52	2	2	1	174
1900	3	0	1	84	1	0	1	47	4	2	0	252
Total	72	25	19	737	125	37	23	194	91	29	59	1258
Total general	853				979				1,437			

PERÍODO DE 10 AÑOS (1891 Á 1900), SEGÚN LAS EDADES.

Edades.	Tuberculosis.	Bronquitis.	Pneumonia.
De 0 á 9 años	11	48	27
" 10 á 19 "	97	93	123
" 20 á 29 "	244	271	442
" 30 á 39 "	215	202	352
" 40 á 49 "	116	114	231
" 50 á 59 "	98	83	136
" 60 á 69 "	28	103	73
" 70 á 79 "	22	48	28
" 80 á 89 "	17	14	21
" 90 á más	5	3	4
Total	853	979	1,437

Por los datos estadísticos que acabamos de exponer se puede juzgar muy fácilmente acerca de la enorme diferencia que existe entre los ingresos habidos por tuberculosis en nuestro Hospital, desde el año de 1871 al de 1901, es decir, en el período de treinta años, siendo relativamente pequeña la diferencia en cuanto al ingreso total anual; es, pues, alarmante la propagación que la tuberculosis ha tomado en la Capital de la República, y más alarmante, aún, es el número de enfermos atacados en la edad mas varonil, de los veite á lao cuarenta años de edad; y, consiguiente número de defunciones.

Si además tomamos en consideración los casos que se han observado de enfermos de Bronquitis, Pneumonía y Grippe, en relación con la predisposición que ellas dejan para con la tuberculosis; y, además el crecido número de indivíduos que han sido atacados de esas enfermedades en relación con las demás afecciones tratadas en el Hospital, tendremos mayor motivo para inquietarnos, respecto al desarrollo ulterior de la tuberculosis. He aquí

porque es de indispensable necesidad la pronta terminacion del Sanatorio Rocafuerte, del asilo y curación de nuestros tuberculosos, de su hospitalización para evitar el contagio, &, &.

La Sociedad de Beneficencia "Olmedo," establecida solemnemente en Quito, el día 28 de Mayo de 1893, por los costeños residentes en la Capital, concibió la idea de fundar un Sanatorio para Tuberculosos y el día 1° de Mayo de 1900, el Presidente de la Sociedad Sr. Dr. Juan Francisco Game, colocó la primera piedra fundamental de lo que doy llamamos "Sanatorio Rocafuerte," de la monumental obra que está próxima á terminarse y para la cual han prestado su apoyo todos los Gobiernos y de modo especial los del Sr. Dr. Luis Cordero, y el Sr. General D. Eloy Alfaro, quienes de modo especial favorecieron la obra del Sanatorio creando fondos especiales para dichos trabajos.

El Sanatorio Rocafuerte está situado en las faldas del Pichincha tras la loma llamada de San Juan, que lo separa del centro de la población siendo dicha loma, la terminación hacia el Norte de la Colina denominada "La Chilena;" El "Sanatorio Rocafuerte" dista del centro de la ciudad más de 1000 metros; está situado de manera que recibe el sol de Oriente, á la altura de 3000 mtr., sobre el nivel del mar; y 150 mtr, sobre la plaza principal, en lugar casi despoblado y con una vista panóramica extensa y hermosísima; el aire que allí se respira es de lo más puro, sin polvo y sin gérmenes nocivos; el sitio fué elegido previo el informe de una comisión técnica compuesta de los Srs. Drs. en Medicina, Dn Ricardo Ortiz y Dn Manuel M. Casáres, y de los Ingenieros Srs. Dn. Gualberte Perez y Dn Francisco Schmidt.

Tanto para la formación del Plano cuanto para la distribución de las localidades para aparatos, aireación, &, &, reglamentos, &, &, se han tomado informes precisos y se han practicado estudios prolijos ya por personas competentes de la localidad, ya por comisiones enviadas á personas idóneas del Exterior. En suma la Sociedad de Beneficencia Olmedo, á la que me onro perteneciendo como su Socio Fundador, ha procedido en todos sus actos observando el mayor acierto que le ha sido posible.

El edificio principal tiene la forma de semicírculo del cual parten 10 radios que constituyen diez pabellones, cada uno de estos tiene 24 mtr. de longitud y 9 mtr. de latitud; entre uno y otro hay un extenso jardín y la curva total es de 160 mtr. de longitud; el semicírculo se cierra por un edificio de dos pisos, con una extención de 132 mtr.; en la parte central y posterior están dispuestos los locales para Capilla, Maquinarias, Lavanderías, &, &, y cada Pabellón está arreglado con capacidad suficiente para 24 camas.

Todo el edificio es construido de cal y piedra, y cal y ladrillo y los techos de fierro galvanizado; todo irá pintado al óleo y arreglado de conformidad con las reglas científicas respecto á higiene, acepcia, anticépcia, &, &. Además, fuera de las 240 camas para enfermos en el edificio principal, se construirán

otros edificios secundarios para pencionistas y para los Tuberculosos que padezcán de otras enfermedades también contagiosa.

El Sanatorio Rocafuerte es de los de tipo costoso, su valor acenderá, más ó menos, á $500.000, razón por la que se lo ha calificado de Monstruo, de Sobérbia y Magestuosa Montaña de Granito, &, y en verdad que si es Soberbio y Magestuoso; pertenece al tipo de los Sanatorios de Alemania, Inglaterra y Estados Unidos, como el Falkenstein, el Brehmer, el Hohenhonnef, el Ventnor, el Brompton, el The Home de Denver, el de l'Etat de Massachusetts, &, &. La Sociedad Olmedo para adoptar ese tipo costoso, quiso hacer una obra duradera, una obra que desafíe al tiempo, una obra espléndida y'completa; y entre innumerables datos, se tuvo en cuenta los suministrados por el Sr. Dr. Roberto Cucalón que en ese entonces residía en Berlín y concurrió al Congreso Médico que tuvo lugar en esa Ciudad: así también se tomó en consideración los informes emitidos por el Sr. Dr. Dn. Carlos Mateus, que por comisión de la Sociedad, se puso al habla al respecto, en Nueva York, con los Srs, Professores Drs. Henna y Birmingham, el primero miembro del Directorio de un Hospital para enfermedades del pecho, y, el segundo, Médico especialista en afecciones pulmonares.

Para mejor conocimiento adjuntamos el Plano del piso bajo y las fotografías de la parte anterior y superior del edificio; advirtiéndose, que en mucho se ha modificado y agrandado el plano de la parte posterior.

Ahora, veamos otro punto muy importante en relación con nuestros tuberculosos; es la mayor ó menor facilidad que tenga un Tuberculoso para trasladarse á estas regiones Andinas dado el estado en el que se encuentre su dolencia, las condiciones que requiere su venida de la Costa á la Capital, y no digo de la Capital á la Costa, porque si bien es verdad que en, muchos casos se presenta la indicación especial del clima de la Costa para la curación de aquellos tuberculosos hemoptoicos, cardiacos, &, también, es cierto que por falta en esas localidades de Dispensarios, de Sanatorios, &, &. no es posible enviar á los enfermos pobres en buzca de climas costaneros.

Hasta hace pocos años, puede decirse que sólo hemos tenido una via de comunicación entre Quito y la Costa, la via de Babahoyo que requería un equipo de viaje muy considerable, pues este se hacia á caballo, por caminos exesivamente quebrados, y á traves de lugares despoblados y faltos de todo género de lo que pudiera necesitarse aun gozando de cómpleta salud. Hoy ha llegado para el Ecuador la época de verdadero progreso y de civilización; hoy tenemos en servicio una linea ferrea que uni la Capital de la República, Quito, con nuestro puerto principal, con Guayaquil; hoy, porque no decirlo, debido al empuje que en estos últimos tiempos le ha dado el Gobierno del Sr. Grl. Eloy Alfaro, á la suspirada obra del ferrocarril del Sur, se encuentra terminada y en servicio; hoy somos felises y nos veremos prósperos; pero, tratándose de los Tuberculosos que vengan á buzcar el alivio de sus dolencias

en el benéfico clima de la Sierra, se podrá decir que han ganado con la obra del ferrocarril, con las comodidades que éste presta para el viaje, y con la rapidéz en el traslado? Claro está que sí; pero siempre que el traslado se lleve á efecto observando escrupulosamente las prescrípciones que un facultativo entendido les suministre al emprender su viaje, porque no podrá un Tuberculoso inpunemente, subir en ferrocarril, en seis ó siete horas, una altura de 10626 pies sobre el nivel del mar, descansar una noche á 9064 pies, ponerse al siguiente dia en pocas horas á la altura de 11841 pies y desde allí estacionarse á la altura de 9350 pies, habiendo recorrido una longitud de 250 millas.

Con el fin de que se vea más claramente las distancias, alturas, temperaturas, &, que está obligado á soportar un Tuberculoso que de la Costa se dirije á Quito, exponemos á continuación las vias de comunicación existentes, por Babahoyo y por la nueva del ferrocarril, haciendo presente que por la via de Babahoyo el viaje es por lo menos de ocho dias.

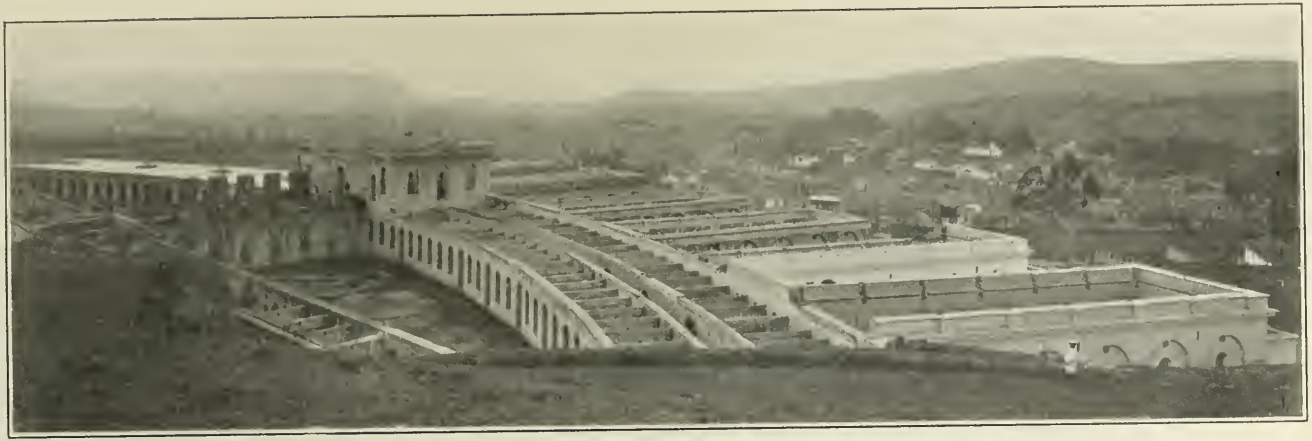
El viaje de Guayaquil á Quito lo dividiremos en varias secciones, según las distintas vias que se han tomado antes de ahora y aun pueden tomarse, así veremos:

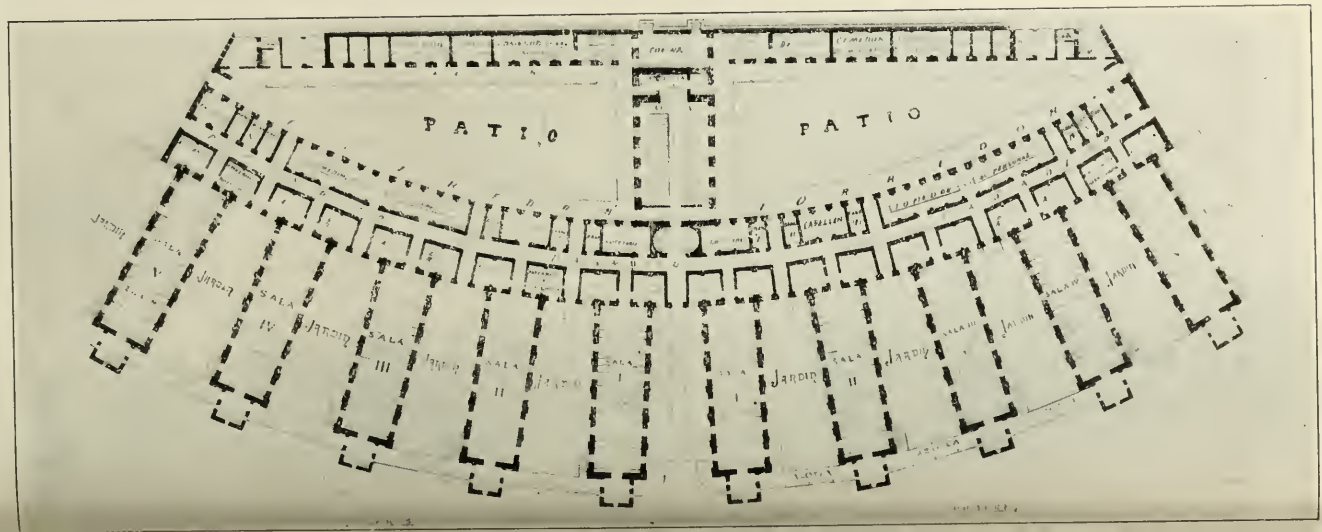
CAMINO DE GUAYAQUIL Á GUARANDA POR POZUELOS.

Nombre de Lugar.	Lugar de Altura.	Alt. en Mtr.	Temp.
Guayaquil	Cuidad.	0	27°5
á Pozuelos	Pueblo.	146	..
á Rios Sn. Antonio	Confluencia.	877	..
á Rios Sn. Antonio	Casas superiores.	1478	..
á Yama-Alpa	Casas del cascajal.	2277	..
á Tambo de Pucará	Tambo.	3060	..
á Camino de Tutapala	Altura.	3200	..
á Pimbulo	Hacienda.	2805	..
á Santa Fé	Caserío.	2693	..
á Guaranda	Fonda "maravilla."	2668	15°

CAMINO DE GUAYAQUIL Á GUARANDA POR BALZAPAMBA.

Nombre de Lugar.	Lugar de Altura.	Alt. en Mtr.	Klm.	Leg.
Guayaquil	Cuidad.	0	0	0
á Balsapamba	..	708	135	27
á Tambo Loma	..	1866	..	..
á Gualashhay	Ensillada de.	2599	150	30
á Tambo de Gobierno	..	3400	155	31
á San Miguel de	Chimbo.	2469	160	32
á Guaranda	Fonda "maravilla."	2668	180	36

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DE GUARANDA Á CHUQUIPOGYO (CAMINO ANTIGUO).

Nombre de Lugar.	Lugar de Altura.	Alt. en Mtr.	Tem.	Kil.	Leg.
De Guaranda	Fonda maravilla.	2668	15°	180	36
á El Pungo	Hacienda.	3002	..	..	..
á Yana Urco	Tambo.	3680	..	..	..
á El Arenal	Punto más alto.	4281	..	..	..
á Totorillas	Tambo.	3910	6°.5	..	..
á Chuquipogyo	Tambo.	3604	10°.1c.	..	..

DE GUARANDA Á CHIQUIPOGYO (CAMINO NUEVO) (QUE NO LO ES).

Nombre del Lugar.	Lugar de Alt.	Alt. en Mtr.	Tem.	Kil.	Leg.
De Guaranda	Fonda maravilla.	2668	15°	180	36
á Tambo de Pucará	Llilluco.	3024	11°.8c.	..	..
á Chinibamba	..	3298	..	..	..
á Loma Llangana	..	3450	..	..	..
á Panza pié de arenal	Reunión dos caminos.	4124	..	..	..
á El Arenal	Punto más alto.	4281	..	..	..
á Totorillas	Tambo.	3910	6°.5c.	..	..
á Chuquipogyo	Tambo.	3604	10°.1c.	..	..

DE GUARANDA A CHUQUIPOGYO (CAMINO DE GANQUIS).

Nombre del Lugar.	Lugar del Alt.	Alt. en Mtr.	Tem.	Kil.	Leg.
De Guaranda	Fonda maravilla.	2668	15°	180	36
á Puente de Totorillas	Tambo.	3910	6°.5	210	42
á Chuquipogyo	Tambo.	3604	10°.1	215	43

DE GUAYAQUIL Á CHUQUIPOGYO (POR CHIMBO).

Nombre del Lugar.	Lugar de Alt.	Alt. en Mtr.	Temper.	Kil.	Leg.
De Guayaquil	Cuidad.	0.80	27°.5	..	..
á Puente de Chimbo	Estación ferroc.	345	..	85	17
á San Pablo	Hacienda.	636	..	95	19
á Margarita	Paso de la cordillera.	3131	..	..	..
á Alpachaca	Hacienda.	3095	..	125	25
Río Chico	Puente.	3114	..	175	35
Altura del camina entre Cajabamba y Guamote	..	3332	..	..	..
Chacabamba	..	..	..	195	39
Laguna de Colta	Capilla.	3228	..	200	40
Chuquipogyo	Reunión de tres caminos.	3604	10°.1	230	46

DE CHUQUIPOGYO Á QUITO.

Nombre del Lugar.	Lugar de Alt.	Alt. en Mtr.	Temp.	Kil.	Leg.
Chuquipogyo	Tambo.	3604	10°.1	215	43
á Sanancajas	Altura del camino	3607	..	220	44
á Mocha	Pueblo.	3284	..	230	46
á Ambato	Plaza principal.	2608	10°.3	250	50
á Unamuncho	Altura del Camino	2792	..	265	53
á San Miguel de Latacunga	Pueblo.	2700	..	275	55
á Latacunga	Plaza principal.	2881	14°.2	290	58
á Cuilchi	Puente.	3069	..	315	63
á Santa Ana	Tambo.	3150	12°.2	320	64
á Huinzha	Altura del camino	3604	..	..	..
á Machachi	Tambo.	2935	..	345	69
á Ushco	Tambillo.	2802	13°.8	355	71
á Arcadia	Hacienda.	2954	..	370	74
á Quito	Plaza Mayor.	2850	13°.5	380	76

DE GUAYAQUIL Á QUITO, POR EL FERROCARRIL DEL SUR.

Nombre del Lugar.	Distancia Parcial en Millas.	Distancia Genrl.	Altura en Pies.
Guayaquil	..	..	..
á Narangito	33.8	33.8	100
á Bucay	23.2	57	975
á Nariz del Diablo	28.7	85.7	6270
á Guamote	26.7	112.4	10000
á Chuquipogyo	31	152.4	11841
á Ambato	26.5	178.9	8435
á Machachi	51.5	229.4	9508
á Quito	20.6	250.0 Millas	9350 Pies

Par dar término á esta memoria, nos resta hacer presente que en esta Cuidad de Quito, el dia 13 de Julio de 1901, se instaló la Liga Internacional contra la Tuberculosis en el Ecuador, bajo la Presidencia del Sr. Dr, Dn. Carlos R. Tobar, elegido para ese merecido cargo tanto por los Srs. Drs. que concurrieron á esa sesión, cuanto por acuerdo del Hble. Congreso Médico Latino Americano reunido en Santiago de Chile en ese mismo año; el suscrito, en la Sesión ya mencionada, tuvo el alto honor de haber sido elegido Secretario de la Liga; pero desgraciadamente ésta no tuvo tiempo sinó para efectuar los nombramientos de los Socios Activos y Honorarios, y las Comisiones relativas á los Subcomités Provinciales; puede decirse que estaba aun organizándose la Liga cuando sobrevino la separación del Sr. Dr. Tobar su dignísimo Presidente, separación que dió por resultado inmediato, que faltando en la Asosiación esa poderosa y activísima palanca, cesaran los trabajos y se extinguiera la Liga como se extingue una planta presiosa

cuando le falta el riego vivificante. Hoy cúmplenos solamente hacer votos porque se reorganice la Liga contra la Tuberculosis en el Ecuador, á fin de que élla con su ejemplo, suscartillas sobre profilazia, &, &, en suma, con sus publicaciones acerca de la lucha contra la Tuberculosis, inculque en nuestro pueblo, las principales reglas sobre higiene, el temor al contagio de la Tuberculosis, &. &. y, sobre todo, exite á las Autoridades locales para que no permanesca como letra escrita y muerta la *Declaración Obligatoria*, toda vez que esa es la única manera de poder verificar el aislamiento de los Tuberculosos y, como consecuencia, la desinfección obligatoria; más aun si se considera que en nuestro pueblo, es la gente pobre, la de raza meztisa, la que más atacada se encuentra por esta terrible enfermedad, y la que por el hecho de ser pobre, facilmente se someteria al buen tratamiento observado en un Sanatorio; siendo todavía más necesaria la reclusión y curación de estos enfermos, si se considera que es la población jóven, la de trabajo, la que figura en mayor número en nuestras estadísticas; razones muy poderosas son las apuntadas, para insistir acerca de la práctica de la declaración obligatoria en el Ecuador, declaración que hoy se encuentra en vigencia como medio para evitar el contagio de la Tuberculosis, en muchísimos paises muy civilizados como: v, g, Alemania en cuyo Plán de Conjunto de las Instituciones contra la Tuberculosis, promulgado por el Comité Central en Abril de 1903, se lee: 1° Declaración obligatoria; 2° Pesquiza especial de los enfermos; y así mismo la vemos establecida en otros paises, como en el de las libertades bien entendidas, en los Estados Unidos de Norte América en que existe desde el año de 1894; en Sajónia desde 1900; en Noruega desde 1901; en Itália desde 1901; y, desde hace poco, relativamente, en Inglaterra, &. &. siendo muy notable el hecho de que en la mayor parte de los paises donde se encuentra establecida dicha ley, su contravención dá lugar á penas gravísimas.

Porque no sea demasiado extenso este trabajo, y porque ha llegado el tiempo en el que debe ser enviado al Congreso, no expongo los casos de Tuberculosis recojidos en mi práctica profesional y solamente me limito á dejar constancia de que es la Tuberculosis pulmonar la que se observa con mayor frecuencia tratándose de Tuberculosis; y que, al tratarse de Tuberculosis pulmonar, la forma frecuente, y hasta puede desirse constante es la forma tórpida, la de marcha lenta, la caracterizada por tos, dolores toráxicos no muy fuertes ni bien determinados, fiebre pequeña é inconstante, algo de anorexia, á veses sudores é insomnios, y, como síntoma dominante, opresión pulmonar y demacración general, y además los signos propios que se observan á la percusión, auscultación, &. &. La forma hemoptóica no se puede desir que sea rara, pero tampoco se puede asegurar que sea frecuente y esas formas agudas, esa granulia confluente, generalizada, esa forma que se ha dado en llamar Galopante, esa es rara, y, de ordinario, se observa en individuos jóvenes, no en desendientes de Tuberculosos, pero si en aquellos seres que

habiendo sido robustos han estado expuestos á un contagio directo y que debido á sus malas costumbres, y otros causas de depauperación orgánica, han tomado la Tuberculosis.

Termino felicitando á la Sociedad Nacional para el Estudio de la Tuberculosis, por la noble y benefactora labor que ha emprendido, y, á la vez felicito al Hble Cuerpo Directivo y Miembros del 6° Congreso Internacional sobre Tuberculosis que se reunirá en Septiembre de 1908 en Washington (1° que se celebra en los E. E. U. U. de América); por cuanto él está llamado á difundir en el mundo entero los conocimientos más propicios para combatir y triunfar en la lucha contra la enfermedad que mayor número de víctimas hace en todo el Globo; contra la Tuberculosis, enfermedad que ha recibido golpe de meurte por la reunión, en Washington, del Congreso Internacional sobre la Tuberculosis.

THE FIRST SIX YEARS' WORK OF THE URUGUAYAN LEAGUE AGAINST TUBERCULOSIS

By Dr. Joaquin Salterain,
Montevideo.

Now that six years have elapsed since the Uruguayan League against Consumption was founded, we can well value the worth of its work, hopes, and ends, as we are free from any inebriating enthusiasm, and have obtained most valuable experience and information. Therefore while reporting on the work which has been carried out by this institution during the last three years, after the report of 1904–1905 was drawn up, we avail ourselves of this stimulating opportunity to look back on the past, and recapitulate something of what we have done.

To begin with, it is an undeniable fact that the doctrine has been preached and spread in all parts of the country, that this institution has taught, and is teaching, by means of an active and intelligent campaign, the dangers of contagion and the danger of spreading germs among those who live in a confined space, the baneful influence of bad habits, especially of alcoholism, the sequel, in a word, to everything which enervates and weakens the human family.

Having familiarized the word "consumption," we have done something more than add one word more to our vocabulary. We have made light in the midst of a dark and unknown world; we have taught, even to the ignorant and obscure, a series of home truths, which to-day have found a prominent place in the mind of the people. Thanks to an active campaign, we have been able to convince the incredulous, to interest all, more or less, showing the dangers and marking the path to be followed, if these are to be avoided.

This work of teaching, in itself alone justifies the founding of the League, more so, as its simple demonstrations, made clear to all, become still stronger by persuasion, evidence, and reasoning methods, free from any dogmatism, which always "handicaps" the most happy initiatives.

To-day the whole country, from one end to the other, knows that consumption is a social calamity; it also knows to-day that the disease can be cured, in all periods, and that it may always be avoided. And this knowledge, which means progress, is one of the results of our action.

This conquest is solely and exclusively the work of the Uruguayan League after six years of constant toil and labor. But can it be said that the scope of its action has been limited to this?

Dispensaries as a Means of Combating Consumption.

Even supposing a perfect organization—a thing which even the majority of the countries of the civilized world cannot claim—the number of consumptives, or candidates to same, on account of organic insufficiency, is so large that all cannot receive assistance.

Legions of consumptives pass their nights in hospitals and suitable asylums; thousands struggle through a fatiguing existence in their wretched homes; many wait an empty bed, hitherto occupied by a dying companion, in order to take his place, if only for a brief period. To how many, alas! even this hope is forbidden, because domestic occupations impose the necessity of work, and these unfortunates must continue spitting blood and coughing up pieces of diseased lungs.

The rest, candidates to become consumptives, either owing to organic debility, physiological debility, or other causes, form the dregs of the human crowd, which the social tide constantly casts up. To counteract such great deficiencies the dispensaries are by no means a certain remedy, taking into consideration the enormity of the evil. But it is no less true that the assistance they afford, the help they render, and the food they distribute, constitute a valuable contingent, which, if not successful in every case, will at least succeed sometimes.

Were the social defense definitely arranged, a selection would be established between the condemned and those who may be cured, and instead of helping the first (unfortunately, the more numerous), the dispensary would limit its action to those who present primitive scars (*"lesiones primitivas"*), which are more easily cured.

The beds which public charity is able to provide are distressingly few, and were they sufficient to accommodate all, it must be remembered that patients in general prefer a treatment which allows them relative independence to one which condemns them to the severe discipline of the hospital or house of isolation.

The final result is an excess of incurable patients, and an enormous amount of money is spent in assisting chronic cases; whereas the whole effort should be devoted to those predisposed, or who present alarming symptoms. But the institution is supported by the authorities and depends on public charity; how is it then possible to deny food and assistance to the forsaken, who possess neither shelter, roof, nor clothing, and who have not even sufficient strength to work to obtain the necessaries of life; besides,

it is proved by our dispensaries, in a most eloquent and suggestive manner, that among many of the irrevocably condemned to a rapid end some recover, and often regain sufficient strength to enable them once more to commence the daily struggle; others are fortunate enough to prolong their days. It must be remembered that the serious factor which aggravates the troubles of legions of consumptives is poverty (misery); therefore can we close our doors and deny a helping hand where the lives of so many are at stake?

Dispensaries are therefore active elements whereby the disasters of consumption are lessened, ameliorated, and even averted, and to meet the demands of social charity, and in the worst cases, prolong the lives, which, although precarious, society has not the right to banish into oblivion. These are the conclusions at which we must logically arrive, after working our dispensaries unceasingly for six years.

Dispensaries as a Means of Preservation.

If we compare what is in reality taught to and expected from a consumptive patient during his stay in a hospital or in the house of isolation, with what the League continuously recommends, by its standing rules, it will be seen that the balance is undoubtedly in favor of the latter.

In the hospital ward the patient receives a daily visit from the resident doctor, whose duty it is to instruct his students, explaining the symptoms of each case, applying technical science, even in the minutest details; but beyond the usual prescription which soothes pain, or prevents the progress of an attack, and once the teachings of science have been carried out, and the health of the patient perhaps improved, what does the unfortunate patient learn concerning taking care of himself, or regarding collective preservation?

Hundreds of impecunious sick plead for help and succor in the wards of our charitable institution. It is true that there they are scientifically classified—they are isolated; they are treated in the best manner possible by methods worthy of the highest praise, but nothing more.

The work of our dispensary is of a completely different nature. Before an invalid is taken under our care his surroundings are carefully examined, and his mode of living is a primary source of investigation; he is then instructed how to take care of himself and how to avoid contagion to those who live near him; he is obliged to keep his person clean, as well as his room; the principles of elementary and practical hygiene are made thoroughly clear to him, and it is only on condition that the patient complies with these precepts that help and attendance are tendered.

And in this manner valuable lessons are taught: habits of cleanliness and practices of self-preservation, which until recently were absolutely

ignored, are now gradually, but surely, being taught by one to the other—teachings which travel from house to house, and from home to home. Open windows, for example, and the use of spittoons were in years gone by hygienic habits respected by few. To-day, in the poorest home, where an inspector of the League has called, invalids, and even many who are not, strictly comply with these precepts.

We may say the same with regard to personal cleanliness, of the distance which ought to separate one bed from the other, of sprinkling water on the floor before sweeping, of clean and well-ventilated bed-rooms, of the suppression of curtains, and of innumerable minor practices, with the help of which rules of living many may recover, and a great number of predisposed are protected.

Unfortunately, our means are limited. In numerous cases, however, where the symptoms of the patient are very serious, he is located in a ward of the house of isolation; in other cases the invalid is isolated from those with whom he lives. He is supplied with funds, which enable him to rent a room for himself; and in every case invalids are obliged to be isolated as much as possible from other inmates, in order that the rest may be protected.

Our success hitherto has been so satisfactory that in many instances, not only has the patient improved, but we have undeniable proofs that the disease has not been spread. The dispensaries, therefore, by the lessons they teach and the discipline they enforce, constitute means of preservation worthy of being included in our war against consumption.

The Dispensaries as a Means of Cure.

It has been stated, and with truth, that it is high time that hospital attendants should possess all technical resources which science requires, but, on the other hand, if patients are allowed to room together, there is the disadvantage of bringing sorrow and unhappiness under the same roof.

A patient has continuously before him the sight of numerous fellow-creatures in misfortune; the comparison and contrast of so much unhappiness thrown together create a most doleful atmosphere, which breaks his spirit.

Physicians, who have become such through daily toil in hospital wards, know this by heart—consumptives more than any other patients, with excited brain and feverish imagination, soon lose the little strength left to them, and lose heart under such trying circumstances far more than others.

Therefore, were sufficient attendance possible with more encouraging surroundings, the cure of consumptives would be more probable and frequent.

The working of the dispensary counteracts the influence of undesirable surroundings and does not completely isolate a patient from his family,

nor is the patient entirely denied his liberty; the treatment is more in harmony with the nature of his disease, and more closely contemplates the moral hygiene of his mind—a rigid discipline is not imposed. Facts go to prove this in a striking manner; otherwise, it would not be possible to explain the interest shown by many of our invalids, but by taking into account the influence exercised by surroundings, and the nature of the attendance afforded,—which is continuous, but never reaches excessive severity,—and as far as results are concerned, the figures laid before you will show that they are far from discouraging.

In the Department of Montevideo alone, during the last six years, we have attended 1230 consumptives of all classes in our dispensaries, the majority of whom presented advanced symptoms, and among them were many incurables. Of this number, 233 have been discharged, apparently cured, thus giving us a proportion of 18.94 per cent. of successes—that is to say, one-fifth of those who received attention. And if, as we have already remarked, the deplorable condition of the majority of invalids is taken into consideration, these figures establish the credit of the institution. More so, all those who are classified under the heading of cured have been carefully watched from one year to another, to ascertain the actual condition of each case, not with the idea of dazzling the public with fantastic statistics, but in order to strengthen our conclusions with undeniable and illustrative facts.

Dispensaries are therefore most useful, and first-class factors in the cure of consumption, and they have already given ample proofs of their importance in Uruguay.

At the present moment eight of these institutions are working steadily throughout the country—three in Montevideo, one in Minas, one in Treinta y Tres, one in Salto, one in Paysandu, and one in San José. Those situated in the interior, which deserve special mention, are: First, the one in Salto, organized on a solid basis, thanks to the intelligent zeal of Dr. José L. Amorin. Secondly, the one in Minas, directed under similar circumstances by Dr. Uberfil R. Acuña. Then the one in Treinta y Tres, under the direction of Dr. A. M. Bargo. And, lastly, the one in Paysandu, directed by Dr. Luis Guitierrez, and the one in San José, organized within the last few months by Drs. Giampietro, Freitas, and Chiolini, all of whom coöperate in the work.

The figures referring to our "Dispensaries Maciel" Nos. 1, 2, and 3 in Montevideo show the following data during the years 1905–1908:

Dispensaries.	Total of Invalids.	Cases Cured.
Maciel No. 1	263	53
" No. 2	268	57
" No. 3	216	30
	747	140

The proportion of patients discharged as cured is as follows:

Dispensary Maciel	No. 1	20.15%
" "	No. 2	21.26%
" "	No. 3	13.88%

The average proportion of patients cured during 1905–1908 was 18.60 per cent.

The number of fatal cases was as follows:

		Number of Patients.	Per Cent.
In Dispensary Maciel	No. 1	13	4.94
" " "	No. 2	38	14.98
" " "	No. 3	31	14.35
Total		82	10.98

You will see that this average is relatively encouraging, as we note a total of 747 patients who received assistance, 140 were discharged as cured, and only 82 were fatal. Summing up the figures taken from the reports of the directors of our dispensaries:

Movement.	Dispensaries Maciel.			Total.
	No. 1.	No. 2.	No. 3.	
Consulting days	394	429	430	1253
Consultations	8776	9340	6510	24626
Sputa analyzed	274	82	166	622
Domiciliary visits	2185	1596	1499	5280
Recipes prescribed	6947	8411	6142	21500
Room-spittoons distributed	171	246	170	607
Pocket spittoons	15	10	8	33
Persons examined who proved not to be affected	2101	2038	613	4752

Supporting Members.

Although it may be a lamentable fact to have to record, it is nevertheless a true one, that the number of supporting members is not on the increase, but is decreasing as rapidly as our expenditure increases.

Were it not that the League is able to count on the subvention it receives from the National Committee of Charity, most benevolently and generously granted by the government, or did it not count among its protectors the anonymous, munificent, and charitable protector who gave the land necessary to erect the building in which we meet, and who at a later date (without disclosing his name) presented the League with the sum of five hundred thousand francs with which to erect a sanatorium, and the never-ending help of the well-deserving Messrs. Pereira and Rossel, of a

CONDITION IN WHICH THE 140 CASES WERE DISCHARGED AS CURED OR RECOVERING.

	Year 1905–1906 (Fourth of the League).				Year 1906–1907 (Fifth of the League).				Year 1907–1908 (Sixth of the League).				Total of three Years, 1905–1908.			
	Dispensary No. 1.	Dispensary No. 2.	Dispensary No. 3.	Total.	Dispensary No. 1.	Dispensary No. 2.	Dispensary No. 3.	Total.	Dispensary No. 1.	Dispensary No. 2.	Dispensary No. 3.	Total.	Dispensary No. 1.	Dispensary No. 2.	Dispensary No. 3.	Total.
Discharged as cured.....	19	21	2	42	17	24	15	56	17	12	13	42	53	57	30	140
No. of days attended to.....	7008	10363	790	18161	6474	8819	8819	25537	7849	5144	7248	20241	21331	25751	16857	63939
No. of days' attendance given to each invalid....	369	493	395	432	381	427	684	456	462	429	558	482	402	452	562	456
Age of those cured	19	23	17	21	22	23	23	23	325	268	264	859	1071	1288	648	3007
Average age.....	370	477	35	882	376	543	349	1268	19	22	20	20	20	23	22	21
Total weight on entering.....	838.200	997.500	109.400	1945.100	812.200	1042.500	664.400	2515.100	797.000	587.200	589.300	1964.500	2447.400	2618.200	1363.100	6424.700
Total weight on leaving.....	899.700	1083.100	137.000	2119.800	882.300	1132.800	737.200	2752.300	897.100	615.300	652.400	2164.800	2679.600	2831.200	1526.600	7036.900
Increase of weight.	61.500	85.600	27.600	174.700	70.100	90.300	72.800	233.200	100.100	37.100	63.100	200.300	232.200	213.000	163.500	612.200
Average weight on entering	44.116	47.500	54.700	46.312	47.776	43.437	44.293	44.912	46.882	48.183	45.440	46.774	46.177	45.933	45.737	45.820
Average weight on leaving	47.352	51.756	68.500	40.471	51.900	47.200	49.147	49.148	52 770	51.275	50.185	51.543	50.558	49.670	50.886	50.263
Balance in favor of each patient .	3.236	4.076	13.800	4.159	4.124	3.763	4.854	4.236	5.888	3.092	5.145	4.769	4.381	3.737	5.449	4.375

small number of generous and benevolent persons, and that nucleus of untiring supporters, our Ladies' Committee, the existence of the League would indeed be precarious.

The Building of the League and Projected Sanatorium.

The Uruguayan League, the first among those of America, and perhaps even among the majority of similar institutions in Europe, has had the honor of erecting a building of its own, a model dispensary, which we can, without blushing, show to both kin and alien. The building has every hygienic requirement. The most insignificant details of the edifice have been so thoroughly completed that we may well term it irreproachable. The land, the generous gift of an anonymous hand, covers a superficial area of 1054 square meters 96 decimeters. From the very commencement we prepared to isolate the building from the neighboring edifices; it was therefore erected in a space measuring 14 meters 30 centimeters frontage by 22 meters 14 centimeters deep. It is true that on account of being situated in the center the expense of building was necessarily increased, but, on the other hand, the hygienic conditions were greatly improved, leaving sufficient ground for a small garden, which was laid out around the building, thereby allowing perfect ventilation and access of abundant light.

To the rounded angles of all the walls, skirtings, and walls, faced with porcelain tiles, have been added floorings perfectly smooth and perfectly water-tight, numerous ventilators of the latest pattern. Electric stoves of the best makers in Germany, which allow the temperature to be increased rapidly and continuously at pleasure, have been distributed throughout the building; and if perchance some of the details of the frontage, such as the statues on the staircase, and the busts of Professors Villemin and Koch, which adorn the upper part of the building, should be considered as too ornamental, it is only just to record that the symbolic and esthetic details were not paid for by the League. Our benevolent protector, Mr. Alejo Rossell y Rius, has been the instigator and donor of this generous presentation.

We must all remember the intelligent direction of Engineer Mr. Leopoldo J. Tossi, the honest conduct of the constructor, Mr. Nicolas Capuano, and the generous attitude of the electrical engineer, Mr. H. Forester, who drew up the whole plan for the electrical heating, and though a young beginner and a foreigner, has refused to accept any remuneration.

The distribution of the building and the principal details of same are as follows:

Underground.—Two departments for baths, with twelve douches and two closets, containing large baths. Two ward rooms, a hall, a room for

ironing, a saloon deposit and kitchen, reservoir of hot water, etc., and two water-closets.

First Floor.—Principal hall, inspection room, clerks' departments, museum of tuberculosis, porter's room, independent side-entrance for invalids, consulting rooms, laryngological cabinet, laboratory for analysis, two waiting-rooms, room for the distribution of food, large hall, and two water-closets.

Second Floor.—Large saloon for public meetings, sewing-room, room for Ladies' Committee, toilet, library, room for meetings, president's office, receiving room, secretary's office, accountant's office, and two water-closets.

Light, Heating Arrangements, and Ventilation.—One hundred and ten electric light lamps, fifty-nine electric stoves, fourteen gas-tips, nineteen current receivers for ventilators, movable lamps, drying apparatus and irons, six arc lights, and fifty-two ventilating tubes.

The total cost of the building, including furniture, light fittings, etc., amounts to $33,363.46—a sum which we consider low if you take into consideration that labor is so expensive to-day, and that the materials employed were all of the best, from the granite foundations to the last panelings.

At the time of the official inauguration of the new building, which ceremony His Excellency the President of the Republic, Dr. Claudio Williman, was good enough to attend, the good news of a new and more valuable donation was made known to us. Some months later the news was confirmed, and I, in my capacity as president of the League, received the sum of 500,000 francs in public bonds, which are given exclusively toward the erection of the Sanatorium.

The donation, which is anonymous, and of such a considerable sum, does not call for any remarks, but as such acts are rare, they are deserving of public gratitude. The committee, while accepting the valuable gift, decided that when the projected building be finished it should bear the name of its generous founder, as a legitimate and due homage to such spontaneous charity. His name, unknown until now, will ever be remembered and will serve as an everlasting example. He has worked among the working classes, and now he returns to them his hard earnings—blessed be his memory!

As the construction of a sanatorium is a very serious undertaking, and the cost of one, for the poor patients, amounts to about $300,000, if it is to be finished with every requirement of light, ventilation, etc., besides the heavy expenditure of keeping it in working order, we consider it prudent to study the question with care and time in order not to launch out into an unsuccessful undertaking, which would be unpardonable, dealing, as we are, with charitable moneys.

Sanatoriums are nowadays very much discussed, even in Germany, the classical fatherland of sanatoriums for consumptives, and many of their advantages are contested; it is therefore highly convenient to look at the matter thoroughly, to study their good and bad points, and see what is to be adopted and what is to be left out and abandoned.

Instead of constructing large and costly buildings in our country,—where, it is true, we are not endowed with highland climate, but where, on the other hand, large tracts of easily drained country are plentiful,—it would appear at first sight more practical to purchase a large area, either near the seashore, or far in the interior, and there establish large and dense plantations of trees, erecting here and there small buildings, suitable for a cure of rest, and which would have the advantage of abundance of pure air combined with agreeable surroundings.

Our Magazine.

Our monthly bulletin, which during the first years of the foundation of the League was most diligently and cleverly directed by Dr. Ramon Montero y Paulier, was at a later date turned into the "Tuberculosis," the name it now bears, and is at present date under the able direction of Dr. S. B. Rodriguez, Mr. Oscar Deffeminis acting as secretary.

The Ladies' Committee.

As has always been the case, we have to remember this most important branch of our institution with the warmest gratitude.

This warm-hearted committee work quietly, and fulfil their most noble mission with most fruitful results. They sew plentifully for the poor—they visit consumptives—they give out clothing to the needy—they obtain favors, subscriptions, and other sources of income—they keep up the enthusiasm in the ranks of the members.

Perhaps we owe to the Ladies' Committee the greater part of our success.

The following figures confirm my statement:

LADIES' COMMITTEE.

Funds collected and paid into the treasury during the last three years	$9187.56
Festivals which have been given under their patronage	30
Invalids visited and helped	786
Articles of clothing made by them	2198

Income and Expenditure.

The total of our income and expenditure during the six years the Uruguayan League against Consumption has been working is as follows:

	Income.	Expenditure.
First year (1902–1903)	$7,239.79	$3,356.46
Second year (1903–1904)	23,693.18	15,564.20
Third year (1904–1905)	20,557.55	18,006.77
Fourth year (1905–1906)	32,771.74	21,392.54
Fifth year (1906–1907)	33,619.23	35,877.32
Sixth year (1907–1908)	130,992.08	46,374.83

If from the total net capital ($157,122.73) the result of the inventory taken on the 30th of last June—particulars of which are published in the report—we deduct the sum of $94,418.88, the donation which is exclusively assigned for the building of a sanatorium, and cannot be disposed of otherwise, as well as the sum of $47,983.04, the cost of our model dispensary, and several other items, we remain with a balance of cash in hand amounting to $15,000.00, with which to meet our budget.

The work of the Uruguayan League against Tuberculosis, notwithstanding what has already been done, is, we may say, just entering the period of growth. Until the present date its mission of circulating truth and civilization has been limited to making itself known, and to winning for itself the sympathies of the public, showing a helping hand, when possible, in the dark shadow where misery and desolation are too well known. From to-day onward its sphere of action must be extended as widely as the magnitude of the problem may require and the great interest which several questions demand.

It is not sufficient for a few to struggle toward the end, as it is not sufficient that an isolated group stand up for the defense of all; it is necessary that each and every one should tender a helping hand, because the problem is one which affects the interests of all, of problems, let it be repeated, which affect the very origin, the very elements, of life.

The energy of a race is not the result of the isolated strength of given groups; it is the result of the energies of the sum-total. When the majority cast a favorable balance, the final product is a high standard of perfection and selection, the distinctive character is profiled in definite lines, and manifests itself conspicuously enough to produce those striking qualities which we call the genius and glory of nations.

THE FIGHT AGAINST TUBERCULOSIS IN PORTUGAL.

By Dom Antonio Maria de Lancastre,
General Secretary to the National Institution for Assisting Consumptive People, Lisbon.

If, in the olden times, the middle ages, the Renaissance, and for a long time during the modern period, humanity has lived oppressed by the terror of the plague and by the fear of leprosy, erecting thousands of lazarettos and hospitals as bulwarks against those scourges, tuberculosis, notwithstanding its claims to antiquity, has only in the present day, by means of a quick progressive expansion, acquired such a social importance that, as an evil, it ranks far above the two forementioned diseases.

It is a fact that tuberculosis is an infectious and contagious disease, which follows the laws of its congeners, but it is distinguished by certain etiological conditions which render it a social disease also. Hence, the clear deduction that some of the means to be employed against this disease must be the ordinary ones adopted against all infectious and contagious diseases; and the others must be of a social nature, taking into account those conditions that contribute so much to the possibility of infection; and so the agencies to be put in action are twofold—private initiative and the initiative of the State, indissolubly allied, as the one without the other would render the problem unanswerable, by the suppression of one of its terms.

All measures will be useless unless everybody collaborates; hence the necessity of a rational and sure propaganda, conscious of its aim, and directed solely in order to satisfy the aspirations of all. And there is nothing more difficult than molding public opinion and commanding it. One must take in account the mass of ignorance and stagnation of indifference, so hard to move, when he intends to have a uniform reaction against the evil feared by everybody, but which most people impute to fatality, being content with appealing to Providence for help. Propagandism is the great difficulty in southern countries, where individualism has accentuated itself with the lessening of their importance in the progress of the civilization of the world.

As it happened in every country, tuberculosis sometimes attracted the attention of the State and of private people, measures being adopted without a scientific foundation and established upon the two feelings which have ever moved humanity—fear and piety. So we find in Portugal rudimentary prophylactic measures against tuberculosis in the seventeenth and eighteenth

The Institute Queen Dona Amelia.

centuries, which especially concerned travelers who went from Europe to Rio de Janeiro to find relief for their pulmonary lesions.

The first establishment for the treatment of consumptive people was founded on April 18, 1853, by Her Imperial Majesty, the widow of His Majesty Dom Pedro IV, in the city of Funchal, on behalf of the poor who were attacked by this terrible disease, of which the Princess Dona Maria Amelia, Her Majesty's daughter, had died.

The Convalescent Hospital of the Princess Dona Maria Amelia is still working in a building of its own, which was inaugurated on February 4, 1862, possessing its own revenues for the treatment of twelve people. Up to 1884 nothing practical was done, notwithstanding the great master Sousa Martins having so often set forth the question at the Medical Society, where he dealt broadly and with genial intuition with the several problems concerning tuberculosis. In that year, however, the scientific mission to Serra da Estrella, which was inspired by that remarkable man, gave that subject an evidence of actuality which public attention could no longer disregard.

Some steps of private charity followed the imperial initiative of 1853. In 1886 Doctor Pereira Cardoso, who was a peer of the realm and a medical man also, bequeathed to the Misericordia of Oporto 12 contos de réis (about £2400) for the institution of an infirmary containing sixteen beds, only for consumptive females. In 1890 the beneficent Antonio Ferreira da Cunha Lima bequeathed to the same Misericordia an important legacy, which allowed the foundation of a new infirmary for sixteen consumptives of the male sex.

In 1887–1888 the noble Count of Samodães, the Director of the Oporto Misericordia, proposed that a committee should be appointed to agree about the way of carrying out the measures for the seclusion of consumptives of both sexes in a special pavilion adjoining the buildings of the same institution. The proponent, Monsignor Antonio José Rodrigues Pereira, Antonio Iria Carvalhal, Bento Antonio de Freitas Guimarães, and the Viscount da Gandara, formed the committee. Difficulties of different sorts hindered the carrying out of the purpose.

At the beginning of the reign of King Don Carlos I, Her Majesty Queen Dona Amelia, whose sole preoccupation during her much tried life has been human misery, appointed Professors Oliveira Feijão, Alfredo da Costa, Antonio de Lancastre, and the military engineer, Duval Telles, to study the plans for the founding of a great maritime hospital.

If Her Majesty's wish has not been accomplished, that study has served as a starting-point for two works of great social importance, by initiative of the gracious queen, viz., the Dispensary of Alcantara, where thousands of children undergo treatment, and so many hundreds are saved that it has

contributed to lessen the infant mortality in Lisbon; and the National Institution for Assisting Consumptive People, the purposes, means, and working results of which will be analyzed.

In 1894, by decree of April 12th, obligatory declaration of tuberculosis was established.

In Parliament, the peer Simões Margiochi, and the deputy counsellor Moreira Junior, called the attention of the Government by requesting that steps should be taken against tuberculosis. This they did at different legislative sessions and on several occasions.

The first congress on tuberculosis was held in Portugal, March, 1895. Many of the serious problems were deeply discussed. That certamen, which was one of the first in Europe, was initiated by the distinguished Professor of the Coimbra University, Doctor Augusto Rocha.

On November 27, 1897, the Society of Medical Science appointed a committee to study the question of hospitals for consumptives. Professors Bettencourt Raposo, Alfredo da Costa, Bello de Moraes, Camara Pestana, Eduardo Burnay, Miguel Bombarda, and Dom Antonio de Lancastre were appointed members.

On May 23, 1899, two reports were set before the same Society: one by Doctor Camara Pestana, in which the founding of a sanatorium was proposed; the other by Professor Miguel Bombarda, in which he recommended the founding of a National League against Tuberculosis.

Those reports were set down as order of the day at the Society of Medical Science, on June 6, 1899, and the discussion continued in its sitting of the 13th. Professor Bombarda's proposal was approved of, and that of Doctor Camara not considered, as Her Majesty, the Queen Dona Amelia, had founded on the 11th the National Institution for Assisting Consumptive People.

From that time dates the commencement of the real fight against tuberculosis.

The National League Against Tuberculosis.

Being founded under the patronage of the Society of Medical Science, it became immediately a free institution, uniting the whole medical corporation under the direction of Professor Bombarda.

Following the principle of self-government, it has centers all over the country, at Oporto, Coimbra, Vianna do Castello, Portalegre, Guarda, Bragança, and Beja. These centers, which have the same aims and means in view, are independent, and manage their own business and have no other connection with the other centers, except for the accurate execution of the votes in the meetings of all the groups.

The seat of the League is in Lisbon. A board of directors has the direction of the financial business of the Society, and three committees join the board in the works to be carried out:

A Vulgarization Committee has a bureau of information on every subject concerned with tuberculosis. It also undertakes the distribution of printed matter containing general directions about the illness and prophylactic means, as well as public addresses in all social centers.

A Law Committee, to which the study of the municipal laws and regulations is intrusted.

A Committee of Propaganda in behalf of sanatoriums.

Among the important things done by the League must be mentioned the publication of a paper, "War Against Tuberculosis," for the dissemination of their ideas; lectures given at the Lisbon Commercial Athenæum; the distribution of pamphlets teaching the dangers of tuberculosis.

The League has employed all the means of propaganda used by other associations against tuberculosis. For a long time it had in a kiosk set up on Avenida da Liberdade, in Lisbon, a collection of samples of articles connected with tuberculosis—spittoons, diagrams, tables of statistics, books of propaganda. In short, the League has been enabled to hold four congresses, in which all the great problems of tuberculosis have been discussed. They took place as follows: in Lisbon, in 1901; at Vianna do Castello, in 1902; at Coimbra, in 1904; and at Oporto, in 1907.

The National Assistance.

The National Assistance to Consumptives was founded on June 11, 1899, by Her Majesty Queen Dona Amelia, for the following purposes:

1. The establishing of hospitals, asylums, or infirmaries exclusively for consumptives, in order to mitigate suffering and to prevent contagion.

2. The building of sanatoriums for curable consumptives.

3. The instituting of maritime hospitals for scrofulous children, or for those who, on account of a prenatal disposition, or that acquired by defective nutrition, are liable to contract tuberculosis.

4. The founding of local institutions for the study and treatment of tuberculosis; also for distributing assistance to patients and to their families.

5. The centralizing and strengthening of whatever means might prevent the increase of tuberculosis, lessen its effects, or conduce to the practice of hygienic rules relating to this sickness, and all means to arrest its course, lessen suffering, and promote its cure.

It is, therefore, a Portuguese institution of beneficence, operating throughout the whole kingdom, acknowledged and subsidized by the Government. It has five classes of members, whose yearly subscriptions vary from $24

to $200. Auxiliary members, who subscribe less than $2 annually, are also admitted.

The administrative management of this society is intrusted to a Central Board composed of twelve members, of which Her Majesty, Queen Dona Amelia, is the perpetual president. The financial inspection is committed to a Board of Inspection, composed of three members.

The carrying out of the decisions of the Central Board belongs to an Executive Commission, composed of the General Treasurer and of three members, who are appointed by the Central Board from among themselves. This board, with the exception of the General Secretary, the Solicitor, and the General Treasurer, has its members elected in a general meeting. The non-permanent members of the Central Board, nine in number, are removed every three years by a partial election. The Board of Inspection is elected in the same way

There is a Technical Committee composed of eight members. There is also a Propaganda Committee, divided into subcommissions, as follows: The Committee for "Quetes," a Committee of Festivals, a Committee of Publication, a Prophylactic Committee, a Committee for the Study and Statistics of Tuberculosis, a Committee of Zealous Fellows.

The society depends upon the following income: subsidies from the State, from the local government assemblies of the Azorean Districts, from the municipalities, and one-tenth of that part of the ordinary revenue which the charitable institutions are obliged to contribute, the whole according with the Law of August 17, 1899, and that of June 5, 1903; the fees of its fellows and auxiliary subscribers; the society's revenues from its funds and capital; such is the ordinary income, which, in conformity to the statutes, is destined to meet the current expenses and the support of its establishments.

The capital of the Assistance comprises the value of its buildings and the endowment of the services created and organized with the product of the subscription, initiated by Her Majesty the Queen on June 11, 1899, accrued with the new contributions for the same, and added with one part of its sure revenues, the balance of every year, and the bequests, legacies, and important donations made for the same purpose.

The Maritime Sanatorium at Outão.—The first sanatorium of the Assistance was at Outão, an old castle at the broad estuary of the Sado, near Setubal. It was inaugurated June 6, 1900, with 38 beds, in the inhabitable portion of the castle, and a new building has been added for 128 beds, in 16 infirmaries.

This sanatorium, which is yet unfinished, affords already accommodation for 74 patients, and 64 more will soon be admitted, on the opening of four more infirmaries. Weak, lymphatic, and scrofulous children, from four to twelve years of age, are here treated as indoor patients; and as

soon as the building is completed, it will also admit consumptive children, who may benefit by the treatment at the seaside. From June 6, 1900, to June 30, 1907, 297 children were admitted, of whom 229 were dismissed.

The following result was obtained:

Cured	156
Improved	58
In the same condition	15
Total	229

The Maritime Sanatorium at Carcavellos was inaugurated on August 24, 1902. It owes its foundation to Doctor José de Almeida, and to the late statesman and poet, Counsellor Thomaz Ribeiro. It is installed in the old fort of Junqueiro, near Carcavellos. It was given in 1901 to the Assistance, which enlarged and completed it, so that it has now room enough for 96 beds, distributed throughout large and well-ventilated infirmaries. It is used for the treatment of scrofulous, weak, and lymphatic boys, from four to twelve years of age, and those attacked by external tuberculosis.

From its inauguration until June 30, 1907, 421 children entered the sanatorium, of whom 360 were dismissed as follows:

Greatly improved	68
Improved	228
In the same condition	60
Dead	4
Total	360

The Summer Colony.—Adjoining the sanatorium there is a ward with splendid accommodation for little boys, selected among the patients of the Lisbon Dispensary, who need a short stay at the seaside. In more serious cases the children go into the real sanatorium.

The colony works from the month of August to November, and has, since 1904, admitted the following number of patients:

In the year 1904; number of children admitted	137
" " " 1905; " " " "	145
" " " 1906; " " " "	135
" " " 1907; " " " "	142
Total	559

Sea-bathing.—With a view of rendering efficacious the tonic and strengthening treatment given at the Lisbon Dispensary, a course of sea-bathing, at Trafaria, was initiated for weak or scrofulous children of from four to twelve years of age. Since 1901, during the months of August, September, and October, a group of 120 children take it by turns to stay twenty-one days. After the bath each child receives a meal of bread and milk.

Dispensaries Against Tuberculosis.—The National Assistance to the Consumptives has five dispensaries at work, in Lisbon, Braganca, Porto, Faro, and Vianna do Castello.

Lisbon.—Provisionally installed at Rua do Alecrim, on June 5, 1901, transferred on April 18, 1906, to the Institute Rainha Dona Amelia, in the street Vinte e Quatro de Julho. The medical services, under the care of Doctor Alfredo Lopes, are divided into six consultations: for men, women, children, surgical tuberculosis, oto-rhino-laryngology, etc. Since the inauguration of this establishment, up to June 30, 1907, 42,879 individuals were inscribed at the dispensary, namely: men, 8828; women, 14,581, and children of both sexes, 19,470. The medical consultations were 455,213, namely: men, 137,490; women, 200,046; children, 117,677. There were 4579 houses of consumptive people, during the period of illness and post mortem, and in the case of change of residence, disinfected; 2791 spittoons, both for bed-room and pocket use, with the respective disinfectants, were distributed. Help, consisting of food, was given in the shape of 80,085 rations. From a social point of view the dispensary promoted domiciliary visits, the distribution of meat and bread to poor consumptives, also beds and clothes; and improved the hygienic conditions of many houses.

Braganca.—This dispensary has been working since July 13, 1902. From this date to June 30, 1906, 978 individuals, to whom were given 22,039 consultations, were inscribed as patients there. This dispensary distributes medical aid, meals, etc., to the more needy patients. The medical service is intrusted to Doctor Antonio Olympio Cagigal.

Oporto.—The inauguration of this dispensary took place on January 1, 1903. From this date to June 30, 1907, 5480 patients were inscribed there: men, 1546; women, 2388, children of both sexes, 1546. The number of medical consultations and sessions of treatment reached to 30,150; 11,559 meals were given to poor patients, 287 houses were disinfected, and 542 spittoons given. This dispensary is managed by Doctor Arantes Pereira, who is in charge of the analyses of the expectorations.

Faro.—As at Oporto, the inauguration of this Dispensary took place on January 1, 1903. From that date to December 31, 1907, 367 individuals of both sexes were inscribed on its medical registers, 98 being of the male sex, 193 being of the female sex, and 76 children of both sexes; 19,527 medical consultations were given, as follows: 3433 to children, 10,818 to women, and 5276 to men. The dispensary is installed in a building of its own, which was expressly constructed for that purpose. Here 23,777 food rations have been distributed since its foundation, besides 141 spittoons and 611 kilograms of cod-liver oil. Doctor Alexandre Pereira d'Assis is in charge of its management.

Vianna do Castello.—This dispensary is installed in a building constructed

for that purpose. It was inaugurated on January 9, 1905; 137 individuals had been inscribed there up to June 30, 1906, as follows: 51 men, 48 women, and 38 children, to whom 2148 consultations were given. This dispensary distributed 4628 rations to poor sick people, as well as 58 kilograms of cod-liver oil and 33 spittoons. The medical superintendent is Dr. Antonio Martins Delgado.

All the expenses of the different dispensaries are paid by the Central Board of the Assistance.

Domiciliary Assistance in Lisbon.—Bed-clothes and beds of special type are given by the Executive Committee to the poor suffering from tuberculosis in an advanced stage who attend the Lisbon dispensary. A proposal, in which the want of means of the patient is proved, must be made.

A rigorous disinfection of the patient's house is always made when it becomes indispensable. At the same time an inquiry is made about the conditions in which the patients and their families live.

Services Connected with Tuberculosis.—An order, issued August 4, 1902, granted the Assistance permission to use the Royal Bacteriological Institute Camara Pestana, where the Assistance installed a department with officers of its own, charged with the analyses of the expectoration of its own patients, as well as that of those who had been privately attended. Professor Ayres Kopke is in charge of this service. From the commencement of these services, up to December 31, 1907, 10,955 analyses had been made by that department.

The Central Institute Queen Dona Amelia was inaugurated on April 18, 1906. It is the center of the services of the Assistance. Besides the General Secretary's department, the treasury and library, the office of the "Bulletin Tuberculose," which is the organ of propaganda of the Assistance, is installed there. It has a large hall, for the meetings of the General Assembly, a large tympanum, which opens on the principal front, intended for public instruction.

The Sanatorium Souza Martins is designed for the treatment of curable consumptives of both sexes. It is situated by the side of Guarda, at one thousand meters above sea-level, and consists of three independent pavilions containing 28 beds each, one hospital for intercurrent diseases, a laundry, a post of disinfection, and six independent cottages for rich families. This establishment was inaugurated on May 18, 1907, in the presence of their majesties, and, up to December 31, 1907, it had 117 patients. The medical direction of this establishment is intrusted to Doctor Lopo de Carvalho.

The Suburban Hospital at Portalegre.—This hospital, which is intended for the new consumptives in the district, is now ready to be inaugurated. It contains 16 beds.

The Repose Hospital of Lisboa, which will be named Hospital Dom

Carlos I, will be the natural complement of the work of the dispensary, intended for consumptives who may be saved by a stay of a few months.

A maritime sanatorium at Caminha, and hospitals for consumptives at Coimbra and Braga, are being planned.

The Propaganda.

The Committee of Propaganda, having been constituted on February 4, 1900, under the honorary Presidency of His Majesty the King, Don Carlos the First, began by the publication of about thirty papers on the more interesting subjects connected with tuberculosis, printed in the more widely spread lay journals of the country. They were signed by the first notabilities of the literary and scientific Portuguese world. Moreover, a large distribution of the following pamphlets has been made since 1900:

"Popular aphorisms"	71,200 copies
"Reading-book of precepts against tuberculosis," a summary of the book "Tuberculosis," by Doctor Curry Cabral	108,300 "
"Prophylactic instructions against tuberculosis"	116,700 "
Placards drawing attention to the danger of spitting on the floor	200,000 "
"Instructions for the disinfection of spittoons"	80,700 "
"Tuberculosis," by Doctor Curry Cabral (out of print)	5,000 "
	581,900

In 1905 the Executive Committee decided to publish an annual placard of a large size, and to distribute it in the schools, working shops, State departments, factories, and companies, in order to promote popular knowledge. The placard was made at Mr. Jorge Collaco's studio, under the supervision of the General Secretary of the Assistance, who composed the instructive part. The lithographic work, done in five colors, was executed at the Ortega House, at Valencia, 20,000 copies being made.

Since the foundation of the society to June 30, 1907, the revenue amounted to $864,782, and the expenses were $458,284.

On June 30, 1907, the general society fund amounted to $659,031. It represents the patrimony of the Assistance, and is composed of the proceeds of the public subscription, initiated on June 11, 1899, the balance between the revenue and the expenditure, of various legacies, the value of movables, immovables, and cattle, not including the ground destined for the Hospital de Repouso, for which there is a special fund.

The Subcommittee of Prophylactic Measures showed well the necessity of making the declaration of the existence of tuberculosis compulsory, not only in case of disease, but also when death occurs. The dispensaries became the principal means of enforcing this measure. By its propaganda,

which united its efforts to those of the National League against Tuberculosis, the advantages of the maritime sanatoriums and of the mountain sanatoriums for the consumptive were shown, and the scarcity of our instruments for the needs of the country was made evident. Thus, if the percentage of beds furnished in Portugal for the treatment of all its consumptives were compared with the mortality caused by the same disease, as was done in Sweden, by order of the Royal Committee, whose reporter was Fixell, our country would require 10,000 beds! How far we are as yet from that number!

Much has Grancher's work been recommended for the preservation of infancy, but, unfortunately, the limited resources of the Assistance prevent this and other of its ambitions from being carried out.

Isolation of Consumptives.

Isolation of consumptives was first done, on request of Her Majesty Queen Dona Amelia, by Professor Silva Amado, then managing the civil and national hospitals of Lisbon, for whose consumptive patients the Arroyos Hospital was appointed by him.

His successor, Professor Curry Cabral, charged with the care of building Rego Hospital for the cure of infectious and contagious diseases, had the main edifice reserved for the treatment of tuberculous patients in 212 beds.

As early as 1900 all the consumptives in the military hospitals were isolated in special infirmaries.

Treatment of Rich Consumptives.

Sanatorium of Seixoso.—It is situated near Lixa, on the Douro Railway, the nearest railway station being Cahide. It was founded by Dr. Cerqueira Magro. Part of the edifice having been destroyed by a fire, it is now being rebuilt.

Grand Hotel of Herminios.—The Sanatorium of Covilhã, at 1630 meters above the sea-level. Its distance from Covilhã is 8 kilometers.

Mountain Pension.—Serra da Estrella, Teixoso, 4½ kilometers distant from Covilhã.

Treatment of Poor Consumptives.

Sanatorium Silva Maia.—Situated at Villa Nova de Famalicão, was founded by Counsellor Antonio da Silva Maia for the treatment of consumptives of both sexes.

Treatment of the Lymphatic and of the Scrofulous.

The Sanatorium of Sant'Anna, at Parede, was founded in virtue of an important legacy left by Dona Amelia Biester. It has its own revenues. This establishment is divided into three wings, each of which can hold 60

beds, for the treatment of poor girls from four to twelve years of age, who are anemic, lymphatic, rachitic, or who have surgical tuberculosis.

The Maritime Colony of the Lisbon Misericordia is destined for the children protected by this institution, and is installed in a house of its own, in the town of Oeiras, at the seaside.

Figueira da Foz.—Since 1906, a Holiday Colony is organized every year at Coimbra, which is near the beach at Figueira, where, for about a fortnight, a few dozens of poor children, of from five to ten years of age, by turns, have a stay at the seaside.

The Colony Rey Collaço.—This has been established at Estoril, for six children.

Assistance to Consumptives.

Oporto.—The Beneficent Group of Foz do Douro.—The Royal Humanitarian Society.

Villa Franca de Xira.—Aid to consumptives, paid for by the well-deserving Mr. Palha Blanco, and medicines supplied by the Assistance.

Laws.

The edict of March 14, 1902, issued by the civil governor of Lisbon, on account of which those who spit on the ground in public places shall be punished, and which enforces the use of public spittoons.

The law of June 12, 1901, reorganizing the services of Public Health and Beneficence.

In consequence of this law, on December 24, 1901, a General Regulation for the Services of Public Health and Beneficence was issued.

According to article 60, all physicians are compelled to give official information to the government health officers about all the cases of death from tuberculosis, smallpox, diphtheria, etc., and are subject to a penalty if they omit to do so.

According to No. 6 of article 74 of the above-mentioned regulation, disinfection is made compulsory when a case of death from tuberculosis occurs.

Regulation of August 30, 1902, with regard to the prophylactic measures against tuberculosis, according to which those who omit to declare that cases of tuberculosis or death from it have taken place are liable to a penalty for disobedience to the law, no matter where the disease was located, and whether affecting the lungs or other organs; ordering the disinfection of rooms in hotels which have been used by consumptive people; prohibiting consumptives from selling food, or being employed in mills, crèches, or schools, etc., and determining a census of all the consumptives existing in the kingdom, to be made with reference to January 1, 1903, which in fact was done.

Regulation for the engineering works at the naval arsenal, which was approved by the royal decree of January 12, 1908, by which, according to No. 1 of article 52, all the clerks and workmen should retire with a pension, even if they have served for less than fifteen years, when they have contracted tuberculosis during their service, and in virtue of it.

DISCUSSION.

Dr. George M. Kober (Washington): It is indeed gratifying to learn from our distinguished colleagues what has been accomplished in the struggle against tuberculosis in Austria, Denmark, Greece, Sweden, Uruguay, Argentina, Portugal, and Switzerland, and we are very much indebted to these gentlemen for the very satisfactory presentation of the subject.

In taking an account of stock of the results accomplished, it may not be amiss to remind you that students of vital statistics have noted a marked decrease during the past forty years in the death-rate from consumption, and this, too, long before a specific campaign against the disease was inaugurated. This is notably the case in England, and in many of our large cities the reduction coincident with the introduction of sewers amounts in some instances to 49 per cent. The only reasonable explanation for this is that sewers prevent pollution of the air and contribute to the removal of dampness by subsoil drainage. The influence of impure air as a predisposing factor to tuberculosis must be apparent when we remember that a cesspool with 18 cubic meter contents is capable of polluting the atmosphere in the course of twenty-four hours with over 19 cubic meters of impure gases.

The relation between dampness of soil and pulmonary consumption was first pointed out by Dr. Bowditch, of Boston, in 1862. Dr. Buchanan, the Medical Officer of the Privy Council of England, in 1867 supplied ample statistical proof that consumption became less frequent in certain towns after they had been sewered and the soil consequently drained. In towns like Salisbury, Rugby, and Worthington the reduction amounted to 49, 43, and 36 per cent. respectively.

It is true that such a marked reduction did not always follow, but in these instances it may be fairly assumed that the soil was previously quite dry and could not be materially affected by increased drainage. The general facts were stated by him without offering an explanation. My personal explanation is that dampness of soils usually means a damp building site, and if this dampness extends to the house, the damp air will abstract an undue amount of animal heat. This not only lowers the power of resistance of the inmates, but also predisposes to catarrhal affections, and these in turn render the mucous membranes more vulnerable to the invasion of the tubercle bacilli.

With this reference to one of the factors which has operated in the reduction of the disease, but which is frequently overlooked, let us briefly review the salient features in the spread and prevention of tuberculosis. It is generally admitted: (1) tuberculosis is an infectious disease caused by a specific organism, transmissible under favorable conditions to even healthy individuals; (2) inherited and acquired predisposition plays an important rôle in the dissemination of the disease; (3) the germs may enter the system by the respiratory and alimentary passages, and by the skin and mucous membranes if there be an abrasion; (4) that while the bacillus has been transmitted through the milk, flesh, and blood of animals and man, the most common and effective way is through the sputum and droplets of tuberculous patients; (5) the habitations of consumptives, as well as their personal effects, clothing, etc., are infected, and liable to convey the disease to others.

Time will not permit me to consider all the measures for the prevention of this disease, but I desire to emphasize a few which may be resorted to by the State in the control of the sources of infection and the diminution of predisposing causes.

1. Compulsory notification by householders to the health authorities as soon as the disease is recognized. This is of vital importance for the control of the sources of infection and for the protection of the family and others. It has been urged that the depressing effect of such information would be too great for the patient, but this will surely be counterbalanced when we inform him that it is, after all, a curable disease, and that his chances for recovery are especially favorable if he does not reinfect himself. The health authorities, apart from distributing proper printed directions for the use of the family and the patient as regards the care, disinfection of sputum, and avoidance of droplet infection, should also resort to disinfection of the home and personal effects of the patient, especially upon vacation of the premises.

2. The enactment and enforcement of laws against promiscuous expectoration and coughing into the faces of persons where the sputum is liable to infect, and provisions for suitable spittoons and their proper disinfection in all public places, are called for.

3. The streets should be sprinkled and swept at night, so as to reduce the inhalation of germ-laden dust to a minimum.

4. The supervision of the sanitary condition of factories, hotels, theaters, churches, schools, ambulance service, sleeping cars, etc., should likewise be under the control of the health department, and house-cleaning should be accomplished as far as practicable by the vacuum system.

5. Marriage with a tuberculous person should not only be discouraged, but absolutely prohibited by law. A tuberculous mother should not nurse her infant, and in the selection of a wet-nurse a certificate of health should

be demanded. Isolation of tuberculous patients should be insisted upon in hospitals, asylums, and public institutions. In private life the patient should occupy at least a separate bed, use separate eating and drinking utensils, and neither receive nor give kisses.

6. Government inspection of dairies and of dairy and meat products and the extermination of bovine tuberculosis are urgently called for. The writer has tabulated 86 cases of milk-borne tuberculosis, 3 accidental inoculations of men by the local application of cream and milk, and 12 tuberculous wound infections among veterinarians and butchers. According to Dr. Salmon, during 1900 of 4,861,166 cattle inspected in the United States, 5279, or 1 in 921, were tuberculous; and of 23,336,884 hogs, 5444 were sufficiently affected to cause condemnation of some part of the carcass.

The possibility that the germs of tuberculosis may be conveyed by means of flies and dust suggests that greater precaution be exercised in the exposure of food-stuffs in show-windows and in the open air.

The Duties of the State in Diminishing the Predisposing Causes to Consumption.—Having considered the sources of infection and the indications for their control, it is well to remember that, in addition to the germ, there must also be a suitable soil for its growth and development. Such a soil is usually found in persons of feeble physique, victims of malnutrition, whose vitality has been lowered from any of the numerous causes which are afloat, whether it be in a previous attack of sickness, dissipation, vicious habits, insanitary houses, lack of pure air, sunlight, and proper food.

Reference has already been made to the good effects of sewers in preventing air pollution and in the removal of dampness by drainage. When we remember that only about 30 per cent. of the population in the United States live in sewered towns, and about 41 per cent. live in towns having public water-supplies, we see at once the necessity that a system of public sewage must go hand in hand with the public water-supply.

Insanitary Dwellings.—Tuberculosis is far more prevalent in dark, damp, and insanitary houses. The death-rate is often double and treble that of other localities. While there are doubtless other factors which determine the frightful mortality, none are more potent than deficient sunlight and ventilation. The tubercle bacillus clinging to floors and walls in carelessly expectorated sputum or droplets would be destroyed by a few hours of sunlight, but finds in damp and gloomy rooms suitable environment for its vitality and growth, and other insanitary factors vastly increase the susceptibility to the disease.

For all these reasons I consider the condemnation of houses unfit for human habitation, and the substitution of sanitary houses, only second in importance to the destruction of the germs. The State may not be in position to provide the sanitary homes, but it can at least insist upon regulating

the construction and amount of air space, light, heating, and ventilation of dwellings offered for rent. The State should also interdict the erection of tall buildings, and of all buildings covering over 66 per cent. of the lot, since they shut out light and air, thus destroying the very object for which broad streets and avenues were created, and bringing us back to the insanitary era of the medieval towns, with their narrow and winding streets.

Physical Culture, Public Playgrounds, and Baths.—The State should pay attention to the physical development of our youth, and this is best accomplished by proper training, preferably in the open air in the public schools and playgrounds. The children of consumptives require special attention because of the transmission of vulnerable anatomical elements which render them peculiarly liable to the disease; this predisposition can certainly be overcome, in addition to proper food, by pure air, methodical gymnastics, and systematic hardening of the skin secured in bathing. No school should be without these hygienic advantages. No effort should be spared to increase the resisting power of the individual. Indeed, we are altogether too apt to underrate the question of soil or predisposing factors in our crusade against the disease.

Factory Sanitation.—It has also been shown that a vulnerability of the tissues to the disease may be acquired by dust-producing occupations, and here the amount of dust seems less important than the character of the particles which compose it. For this reason, no doubt, the hard, sharp, and angular particles of iron- and stone-dust are more liable to produce lesions of the respiratory mucosa. There is abundant statistical material to indicate the influence of dust-producing occupations as a predisposing factor to tuberculosis and other pulmonary diseases, and it is clearly the duty of the State to formulate efficient laws in regard to factory sanitation and the occupations in general which are injurious to health.

The Duties of the State in the Treatment of Tuberculosis.—It is certainly the duty of the State to see that every patient who has no home, or whose environments offer less favorable conditions for his recovery, is provided with proper care and shelter.

It may be truly said that hospital treatment of consumptives offers the best chances for recovery and the ultimate extermination of the disease, and until a comprehensive system of industrial insurance has been adopted, the State must shoulder the responsibility in the case of patients unable to bear the financial burdens. Every city of any size should provide facilities for the isolation and proper treatment of the patients, supplemented by general State sanatoriums. Since identification of the disease is the first and most important step in treatment and prevention, the establishment of dispensaries for the recognition of incipient cases among the dependent classes seems urgently called for. Such dispensaries should become the

feeders for municipal and State sanatoriums, and when properly conducted will be a most important factor in the combat against tuberculosis. In all such cases it is desirable to sift charity from abuse, and it devolves upon the State to determine the financial condition of the applicant and prevent destitution of the family while the bread-winner is incapacitated for work. It is also the duty of the State to suppress quackery, for no class fall more readily a prey to unscrupulous mountebanks than our consumptives.

The Federal Government is already performing an important duty by exercising a watchful care over the subject of tuberculosis among animals. The preventive measures urged by the Bureau of Animal Industry are of far-reaching significance, although primarily intended to protect the pocket-book of our farmers and stock-raisers. Large sums are annually and very properly expended to quarantine our seaports against cholera, yellow fever, and smallpox, because these diseases, if permitted to gain a foothold, occur in epidemics, are rapidly fatal, and hence strike terror into a community; and it is to be hoped that similar opportunities will be afforded to the Public Health Service to cope with tuberculosis, which claims more victims than all these diseases combined.

In the actual care and treatment we also have a right to expect a more active participation on the part of the Federal Government. It is a notorious fact that thousands of helpless cases of consumption are annually dumped upon States and Territories which have become famed as health-resorts, and the hospitals, sanatoriums, and almshouses of the Carolinas, California, Colorado, Arizona, and New Mexico, are filled with indigent dying consumptives.

It is claimed by Mr. Frank D. Witherbee, in "Charities," November 6, 1904, that in Phœnix, Arizona, public and private charity is taxed to the uttermost, and that three-fourths of the money expended on the inmates of the almshouse goes to alien consumptives.

It is cruel and worse than useless to send a consumptive away from home without sufficient means to secure the ordinary comforts and advantages of climatic treatment, and the Federal Government should not tolerate it; but until this is accomplished, the Public Health and Marine Hospital Service should be authorized to study the problem, which studies may form the basis for a more permanent and enlightened amelioration of this unfortunate class of victims.

It is very evident that the great problem which confronts most of our sanatoriums to-day is, what shall be done with the class of indigent patients whose disease has been arrested, but who need suitable employment and surroundings for their permanent recovery. While it is hoped that the opportunities of a coöperative system will broaden out in time in connection with the State sanatoriums, it cannot be denied that certain sections in

the far west offer suitable advantages for a permanent cure, and the question arises whether the Federal Government would not be justified in engaging in extensive live-stock raising to give employment to young men of this class. The government needs horses and mules, beef and mutton, butter and dairy products for the public services. It has many valuable reservations susceptible of cultivation, with or without reclamation, and there is no good reason why such farms should not prove self-supporting.

The results of the government sanatoriums for consumptives at Fort Bayard, Fort Stanton, Fort Lyons, Colorado, have been so gratifying that substantial and permanent results may be hoped for by an expansion of the system to at least the civilian employees of the government along the lines indicated, or possibly by the establishment of colonies for arrested cases.

Dr. Peter H. Bryce (Ottawa) expressed his pleasure in listening to the complete summary given by Dr. Kober. We have to deal with three factors, namely, the germ, the environment, and the patient. Dr. Kober has pointed out how England has succeeded in reducing the mortality by removing the dampness of the soil by drainage, improving the general sanitary conditions, and by instituting meat and milk inspection. Nevertheless, Dr. Bryce expressed his firm conviction that the chief factor lies in the proper sanitation of homes. In his department he has control of the Canadian Indians, among whom the death-rate, ordinarily from 20 to 25 per thousand, has reached the enormous figure of 86 per thousand. These Indians had been sent to the Rocky Mountains of Canada, where the rainfall amounts to 10 to 14 inches per year, where, therefore, the climate may be considered perfect, as regards dampness, etc. Yet these Indians, living in such a perfect climate in small huts, have shown a death-rate of 50 per thousand from tuberculosis. The danger from meat and milk is eliminated, since the cattle of that region are not infected with tuberculosis and Indians do not use milk. The Indian is in his cottage from October until May, therefore everything is eliminated except the box in which he lives. Now, if the Indian's hut can be taken as an example, we have the explanation of what must be done in our cities. The same is true of the Italians in New York city who come from a life in the open air in Italy to live in unsanitary homes, with a consequently high death-rate. Dr. Bryce therefore concluded that the chief object to be attained is house inspection, and that municipal control is to be regarded as the explanation of the cause of the reduction of the death-rate from tuberculosis in England.

Dr. Cheney (Connecticut) described a movement in the State of Connecticut which he thinks is new and deserves special attention. This is called the "workingmen's free bed fund"—a movement started by a man who came from the ranks of the workingmen. The workingmen raise funds, consisting almost entirely of small contributions, which are used for the

establishment of free beds and for the care of advanced cases who cannot care for themselves. The movement has spread to other cities of Connecticut.

Dr. Thornton (Memphis, Tenn.) expresses his belief that too few of our States have done enough in the matter of providing sanatoriums for those patients who are unable to provide for themselves. He discusses the death-rate among the negroes and whites in his State, particularly among the class who cannot care for themselves, and reached the conclusion that sanatoriums would be of great benefit, since they would care for these patients, thereby removing them from the community and decreasing the danger of spreading the disease, and also would serve as educational institutions.

Dr. Bullock (St. Joseph, Missouri) expressed his belief that his home city is one of the most healthful in the world. The reason for this he believes to be found in the fact that the streets of his city are not swept, but are thoroughly flooded with a hose, thereby avoiding street-dust and danger of infection from it.

Dr. Sansom (Memphis, Tenn.) considered the chief source of infection with tuberculosis to be the huddling together of people in unsanitary dwellings. He discussed the condition among the negroes of the south, who lived before the war in good dwellings, ate proper food, and breathed pure air. Within a few years after the war tuberculosis developed suddenly and became most virulent, because of the huddling together of the negroes in ill-ventilated dwellings. He concluded that the chief duty of the State should be to aid in destroying these channels of infection.

Dr. Ulloa (Costa Rica) expressed his belief that house inspection is the most important way to attack the disease. He believes that the same result with tuberculosis can be attained as has been attained with yellow fever. A second important consideration is the compulsory notification of cases. We must treat tuberculosis as we treat other infectious diseases and adopt more strenuous measures.

Dr. Eduardo Liceaga (the Delegate from Mexico) agreed with Dr. Bryce that the most effective manner of combating the disease is by house inspection. He considered further the measures which are to be taken to prevent infection in public places, such as railways and steamships, and proposed that the companies be compelled to provide portable cuspidors.

Dr. Hodgetts (Toronto) expressed his pleasure in hearing from Sweden that the State had taken the lead, and had thereby taken the work out of the hands of charity organizations. The State should not assume the entire charge, but should divide the responsibility with the municipality. The State should provide sanatoriums for those unfortunates who cannot provide for themselves, and should further aid by funds all institutions engaged in the work against tuberculosis, recognizing that they all have their distinct field of work.

Dr. Lewis (Virginia) expressed his conviction that the time has come when the State and municipality must take control. He noted the necessity of State action in the supervision of the construction of prisons and the isolation of tuberculous convicts. School buildings should also be watched over by the State, and no school building should be built without an air-supply of at least 250 cubic feet per scholar, as the law in Virginia now requires. He agreed with former speakers that the cause of the enormous death-rate from tuberculosis among the negroes is their crowding together in ill-ventilated houses.

Dr. Medina (New York) believed that while a great deal has been accomplished, our only hope lies in the education of the general public, not so much of the old, as of the young in the public schools. He thought that the physicians assigned to the public schools should examine pupils for tuberculosis, and that tuberculous pupils should be excluded and followed up by proper officers, and cared for.

Dr. Menville (Louisiana) explained that before the war it was in the interest of the owner to keep his slaves in good health, therefore a physician made biweekly visits. To-day there is no such provision. The negroes live in overcrowded conditions, spend their money in gambling, eat poor food, and clothe themselves poorly. He further emphasized the fact that when a group of medical men go before our State legislatures, asking that some measure or other be passed, the legislators become suspicious. We must, therefore, begin by first educating the legislators. His State has a commission which sends out men to the different parishes, who hold meetings of health officers and others interested, in an attempt to educate the public, and through the public the legislators.

Dr. Heiser (of the Philippine Islands) closed the discussion. He believes that three facts stand out as a result of the opening session: (1) that tuberculosis is a house disease, a disease of civilization; therefore, (2) uniform legislation preventing overcrowding must be instituted and (3) an educational campaign must be begun.

SECTION VI.

State and Municipal Control of Tuberculosis (*Continued*).

SECOND SESSION.

Tuesday Morning, September 29, 1908.

STATUS OF THE TUBERCULOSIS CAMPAIGN IN VARIOUS COUNTRIES (*Continued*).

Section VI was called to order by the President, Surgeon-General Walter Wyman, on Tuesday morning, September 29th, at half-past nine o'clock.

THE PROBLEM OF TUBERCULOSIS IN CUBA.

By Dr. J. L. Jacobsen,
Havana.

The problem of tuberculosis, considered in its general lines, may be said to be the same in Cuba as in any other country; the disease shows the same evolution, clinical varieties, and is due to the causes known everywhere else.

It will be understood, of course, that we refer to the social problem: the conquering remedy* that would naturally change the terms in which that problem is actually conceived, and which would fix conditions as regards cure, has not as yet been discovered. Tuberculosis is avoidable and curable at any period, and if we do not command a sure agent of cure, we have indirect means of proved efficiency. It is a natural and practical method which has as its only base the observance of a simple hygiene and is easily adapted to the life of the citizens. With airy, clean, and spacious dwellings, good food, and adequate exercise, a man will doubtless offer greater resis-

* Ch. Cornillot & J. Montelli, Prophylaxie de la Tuberculose en France par l'education sociale. (2 Congrès d'Education Sociale, Bordeaux, Septembre, 1907.)

tance, and will command, in case of infection, natural and energetic means of defense.

It is not our purpose to describe a general prophylactic plan, nor to discuss the value of diverse methods which constitute the social treatment of tuberculosis, prophylactic and curative at the same time.

The problem in Cuba presents some points that should be mentioned. Primarily, regarding the etiology of the disease, there is a new factor to be reckoned with, and which depends on the tobacco industry. There are many cigar and cigarette factories distributed throughout the island. Referring merely to the capital, where the majority are located, the sum reaches up to 140 (100 cigar factories and 40 cigarette factories), employing 15,000 men and 5000 women. We have not yet complete statistics allowing us to compute the number of cigar makers suffering with consumption. However, the following figures may be examined; they are the only ones I was able to gather. In statistics presented by Dr. Ortega covering 1486 consumptive patients from several hospitals, the Tamayo Dispensary, and the north and south districts of the city up to the year 1902, it can be seen that the occupations are distributed as follows: 116 cooks, 131 masons, 214 clerks, 236 peddlers, 91 office clerks, 179 without gainful occupation, and 285 cigar makers—the last class furnishing the largest number. At the dispensary of the League, out of 588 patients, 168 are cigar makers—also the largest number. Dr. Rensoli, of the Dispensario of Sanidad, has furnished me with the following data: out of 676 patients, 96 are cigar makers, and in a group of 225 patients employed in housekeeping there would surely be found a good many more. Undoubtedly, the industry is carried out under bad conditions; the factories, excepting a few, are not built for the purpose, and the cigar maker works in a close atmosphere. "If a factory is visited during working hours, a disagreeble impression is received by seeing the agglomeration of workingmen of all ages; when going into the place, a heated fume or vapor, impregnated with a strong odor of tobacco, is felt. In the city of Havana, we do not hesitate to say, one of the main causes favoring the frequency and increase of tuberculosis is to be found in the defective conditions prevailing in the cigar industry."* How does the cigar maker become a consumptive? We have asked ourselves this question more than once, and though we believe that the disease in those foci is due to common causes,—darkness, dampness, and lack of ventilation,—yet consumption is so frequent among the cigar makers that we have asked ourselves whether tobacco might exercise some specific action on the development of the disease. Dr. Davalos and myself have gone into a series of experiments which, so far, do not allow us to set forth a conclusive answer,

* Article "Tuberculosis," in the Sanitary Manual (Manual de Sanidad), Habana, 1903.

which, however, we present in a separate paper to this Congress. The cigar maker, as a rule, is a sick man. With a little experience one can easily recognize him. He is a thin, pale, weak, and sad-looking man. Usually his appetite and digestion are poor. Before becoming a consumptive his functions gradually lose their normal energy. In many of the cases examined by Dr. L. Plasencia the hematologic examinations show the formula of chlorosis.

"It is a well-known fact that young men with a predisposition to the disease, and even those without such a tendency, will contract it sooner or later at the cigar factories. There are few who are able to spend several years at the workshops without visible injury to their health. Havana, having in its center so many factories, is a focus which seems to be inexhaustible. Let us now compare the statistics of tuberculosis in cities having cigar factories and those that have not. Instances of the first class are the following: San Antonio de las Baños, Bejucal y Santiago de las Vegas, unhealthy places wherein tuberculosis is more frequent.

"These unsanitary conditions are due to non-compliance with the rules provided by the Board of Health (Junta Superior) for the hygienic regulation of the industry. Even in the few factories built for the purpose there is a noted lack of ventilation, light, and space for the number of workmen employed. The Board of Health, in its sanitary regulations approved and enforced by the Government, ordered, among other things, that the cubic area for each workman should be not less than twenty cubic meters; and in a report I presented to the Board of Health, by reason of an appeal filed by the proprietor of a factory against such regulations, I suggested that in workshops sufficiently ventilated said standard of cubication could be lowered, but for those dark and badly ventilated workshops so common at the cigar factories in Havana the standard should be maintained. As I have said, in the majority of workshops the air is not changed, the claim being made that the current of air dries the tobacco leaf and damages the product. But this is not so. I have seen the manufacturing of cigars carried out in open, spacious, airy departments or halls, which, by the way, are rarely found in the cigar factories of this city. I refer to the wrapper rolling department, in which there should and can be an adequate ventilation, without at the same time drying the tobacco. At the selecting departments (escogidas) the ventilation can be increased. On the other hand, the stripping and outstripping departments should be more protected from the air by locating them in proper halls wherein the workingmen in smaller numbers may dispose of a larger cubication as compensation for less ventilation. Leaf tobacco in bales must be kept in closed rooms. I cannot recommend a uniform system of ventilation to be applied to all workshops in Havana, as their construction and arrangement differ. The ventilation

ought to be permanent, but effected gently, in such a way as not to be noticed.

"The cigar maker is in need of more protection than others, for in the practice of his trade he exposes his health, which in the greatest number of cases is irreparably damaged. For this reason the Frenchmen have classified it among the unhealthy trades. I am of the same opinion, and have recommended as an addition to the regulations now in force the following: First, to prohibit the erection of new cigar factories within the limits of the city; second, to prohibit repairs or changes in construction in the factories now existing within the city limits which may tend to make them more durable."* In ventilated workshops the standard of space may be lowered; and the sanitary engineer shall fix it for each workshop in accordance with their shape and arrangement, after convenient and continuous ventilation is secured. The important point is to establish in every department a simple and adequate system of ventilation, and to regulate the current in such a manner as not to hurt the workingmen nor to injure the tobacco leaf, while making sure that a breathable atmosphere is obtained. If it were desirable to examine the air, we might ultimately fix the degree of purity of the atmosphere and finally regulate the plan of ventilation.†

Among the cigar makers it is very frequent to meet with consumptives, but cases produced by alcoholism are very seldom found. This is a peculiarity of the problem of tuberculosis in Cuba. Alcohol is certainly a cause of tuberculosis in every country, and it is so in Cuba, but in a very small proportion. While in foreign statistics alcoholism occupies a prominent place in the etiology, in our country the cases of tuberculosis due to that cause are very few. In my practice I have seen it very seldom, and this is clinically explained by one of these two facts: That the Cuban, as a rule, is not an alcoholic, and that here the complications in the lungs are not so frequent. Therefore we cannot apply to Cuba Clemenceau's expression, "Alcohol is often the conveyer and always the accomplice of tuberculosis."

Among the causes local to our country we must also mention the linen-ironing trade. In our laundries clothes are still pressed by hand, and the work is intrusted to Spanish young men, who very often contract the disease; washerwomen who iron clothes become consumptive very frequently, and this is the reason why it is difficult to find women for this trade. The workingman gets too much fatigued, and to these causes we may add the bad conditions under which the work is done—the heated atmosphere, bad ventilation, and exposure to sudden changes of temperature.

There are many stores where it is still common for clerks to sleep, and

* Article "Tuberculosis," loc. cit.
† Report presented to the Board of Health, Habana, 1907.

which have not the proper conditions for the purpose, as they are badly ventilated and overcrowded, with scarcely sufficient space for storing the goods.

I will not mention other common causes of tuberculosis, as I do not intend to present a complete study of prophylaxis, but merely to indicate the prominent points affecting the Cuban problem, on what basis it stands, and how the problem can be solved most effectually. At a glance we see that this problem, by reason of its wide scope, the numerous social questions involved, and the interests concerning the community, is complicated and difficult to solve.

The organization of the tuberculosis public services in Cuba dates from the period of the first American intervention, in 1899, the foundation of the League in 1902. Before these dates no measures of a prophylactic nature had been officially tried. The problem of tuberculosis had not yet reached under the government's scope, and was limited to therapeutic formulæ and advices given by the physicians to their clients; to the removal of patients to foreign sanatoriums, or the returning of others to their mother-country by regional beneficial associations (Sociedades de Beneficencia Regionales); and to the regular course of treatment at hospitals, etc. Medical literature was poorly supplied with works on tuberculosis. Among such works the death-rate statistics of Dr. A. Gonzalez del Valle are worth mentioning.

The Board of Health was created at the time, and the department was established, including several divisions, among which are those of tuberculosis, statistics, and disinfection. The special dispensary for thoracic diseases was founded, hygienic regulations were prescribed for use at the cigar factories, and those prophylactic measures more urgently required were put into practice and gradually applied. The sanitary regulations, actually in force, were prescribed, and ultimately a sanatorium for the poor classes was located near Havana. The League's advice was asked for, and as a private association it developed the propaganda announced in its program. A monthly publication or bulletin was established, and, taking advantage of its representation before the Board of Health, the League presented plans and reports tending to improve and enlarge the actual organization of the tuberculosis public services.

A large amount of information has been gathered on which a more useful system of prophylaxis could be established. The work established by the health department and that carried out by the League itself are deficient. The problem is known in its different phases, but it is only half tried, in an incomplete and ineffective manner.

As soon as the League ceased having official protection, its work had not the same efficiency. Fully convinced that private associations in Cuba

could not progress, I declared to the League from the start that it ought to have official protection in order that its efforts might be effectively directed. I do not deny that some good has been done, but it is not worth comparing with the time employed, nor with the exertions that have been made. Its bulletins show the whole of six years' work—a lapse of time more than sufficient to achieve some results; and instead of advancing on the ground conquered at the start, when the League met with help in its efforts, its influence was gradually weakening, the number of members decreasing, and to-day the personnel to carry on the work is very small. If it should happen that the League should lose its scant income (almost all of which comes from official sources), it would then be obliged to restrict itself to a small propaganda, which, for all that experience shows, will be fruitless. There are other associations in Cuba similar to ours, dependent on public charity and directed by men of good-will, who are endeavoring to raise the moral level of society and to afford some comforts to the poor classes. Among such associations there is one worthy of special mention because of the good results obtained, and for its intelligent and clever management under Dr. Manuel Delfin. This association is named "The Poor Man's House" (La casa del Pobre), but their sphere of action is very limited and the struggle hard.

Private associations, in Cuba at least, and our League among them, have not been able to carry on by their own efforts really profitable work of education. A social work of this scope must be backed by resources larger than those of private associations, public charity, and even municipalities; it must be supported by the State. The same is true in France, to quote several writers on the subject; the work is started with great enthusiasm, zeal, and intelligence, and it is maintained in the same manner, but the results do not always compensate the exertions. On the other hand, there are other nations in which the State assumes the responsibility and develops its activities within an organization well conceived, the results being brilliant, and followed by a reduction in mortality. England and Germany are in this class. England endeavors, above all things, to improve the life of the working man and to render his dwelling healthy. Germany removes all probable causes of infection, and sets up for this purpose numerous sanatoriums supported by the patients themselves.

In the United States there is an exception to this rule: the feelings of charity and beneficence are so well developed there that the private associations become practical and useful organizations, and, as far as the tuberculosis problem is concerned, they powerfully reinforce and round out the State's action. Both are powerful initiatives working together, and present a vigorous system for the treatment and prevention of tuberculosis, the results of which are more and more gratifying. It is not surprising that

public health in that country derives so much benefit from private activities if the latter, being one of the nation's living forces, organize and daily maintain numerous institutions which enable almost all the large centers of higher education to progress and spread, while in other countries they are supported by the State. This fine accomplishment is the result of social solidarity, and represents a remarkable sign of culture and prosperity.

It is not possible, with our deficiencies, to hope for the application of such elements to the solution of the tuberculosis problem in Cuba.

The tuberculosis public service in Cuba is in charge of a section of the health department, under the direction of a medical chief, who attends to the business of the office and to the inspection of all the services. A census of tuberculosis in Havana is kept by means of compulsory reports of new cases and deaths, furnished by the physicians, and disinfection is done in case of death or change of residence. This section is charged with the following items: The inspection of cigar factories; the service of the dispensary under a medical director and two consulting physicians and inspectors; and a public sanatorium with a director, who is at the same time resident physician.

Furthermore, there are under the same department the disinfection and statistical sections, which work separately. These agencies, as already stated, improve the tuberculosis service. The inspector's section does good work for the tuberculosis section, but even so, it can be said that the results accomplished by each of these sections are not satisfactory, first, because the government does not give them an adequate appropriation; and, second, because they are not organized, nor can they be. Before the Board of Health I have repeatedly asked for the decentralization of these different sections, thereby giving to their respective chiefs a greater sense of responsibility and greater authority; besides this, the work would be easier and more speedy. Each of these sections should have more power, and the work of the department of tuberculosis could be enlarged by assigning to it the work of inspection, disinfection, and statistics relating to tuberculosis. It is possible to have, and there should be, different sections or divisions to take charge of the general services of the department, but the tuberculosis section should have charge of its own services.

The statistical section deserves foremost attention. Statistics are the key to the problem which we are studying. The gathering of statistics is the starting-point, the foundation on which are based the study of the disease, of the patient, the place where he lives, his state or condition, and his social status, etc.

It is important to know the number of deaths, but it is also important to know the number of living consumptives. We should not only make

a record of those that depart, but also should take note of those that remain. We ought to outline the history of the large consumptive family with all its elements, including the young ones, who in many cases begin to form part of it insensibly; the element in that group which we might call adult, for its characteristic features are already well marked; and, lastly, those older cases which, by reason of their advanced stage, are being gradually discarded. Tuberculosis claims so many victims in such a nation; it is so frequent in such a city, etc.; but are the cases evenly distributed or concentrated in certain quarters? To what social class do the victims belong and how do they live? How long have they been sick and how was the disease contracted? Are they in condition to be cured, and what means do they spend for that purpose? etc. The preceding questions affect the social problem and ought to be answered. Medical inspectors would be the best agents for gathering the statistics; and the offices, well organized, the best centers of information. Clinically, the diagnosis is the most important decision reached. Without it the proper warnings cannot be given and rational treatment is not possible. That is why a good diagnosis is of so much importance. Similarly, statistics play a large part in the study of tuberculosis. Carefully and fully practised, the problem of tuberculosis seems solved in its principal parts at least. Statistics play the same rôle that diagnosis does clinically—the essential judgment. What remains to be done is to use the methods which these investigations point out. A case is discovered, and a second, and a third, not for the purpose of securing statistical data, but with the desire of knowing the patients and fixing the means to avoid or to attack the disease; in short, prophylaxis and therapeutics. If the diagnosis has been made, or, in other words, if the statistical work has been done correctly, that will be the result. Great efforts, therefore, ought to be employed to compile reliable statistics in order to know where the patients are, the infected districts, the towns more or less attacked, all of which serves to show how to render those places more healthy and to point out where the patients can be removed.*

The chief sources of information for reliable statistics are two: compulsory reports of cases and the dispensary. Reports which, as Van Ryn says, are the basis of a general prophylaxis are not, however, compulsory everywhere. They are in Cuba, but the result is not fully satisfactory, and it is easily understood. Physicians have assumed one more obligation, and they may fail to do their duty without there being any possibility to compel them to fulfil it exactly. Why not induce a good will to serve the State? I believe it would give good results to offer some annual prizes to such physicians as

* Importance of Statistics in the Problem of Tuberculosis, 1904 (Bulletin of the League).

would report the largest number of cases, or, as is done in some cities in England, to offer a small sum for each consumptive case reported, after having been duly verified.

The dispensaries would also be of great assistance in this work. By reason of their organization they ought to be considered as centers of statistics, as it is their function to verify and classify the cases recorded. It is necessary to increase the number of these centers and to establish one at least in every city of the island, although their organization at first should not be definitive. Lastly, as a complement of this work, a kind of census of cases of tuberculosis might be taken once or twice a year. The blanks should be distributed at the residences, to be filled out by the head of the family.

I believe I have proved with these few data the necessity for immediately establishing a statistical center, generously endowed and duly organized, so that it may have all the powers of an inspection and information office, whose results will be really practical and useful. Thus considered, the most favorable solution of the different phases covered by the problem of tuberculosis would be known. Inspection would let us know the origin of tuberculosis among families, the life of the poor in inadequate dwellings and in our tenement-houses (ciudadelas), their sufferings and privations; and the statistical data, strengthened by an able medical inspection, would make evident the wisdom of making a complete reform in the dwellings occupied by the poor, and of helping them in their urgent needs (food, shelter).

A few years ago I presented, at a meeting of the Board of Health, a plan for the building of a hygienic tenement-house for workingmen, made by the engineer, Mr. Toraya, at my request. It seemes to us so adequate and practical for the purpose of solving one of the most serious points of the prophylaxis of tuberculosis that we have had a model made which I have brought before this Congress—an exhibition of a house built on a strictly economic and hygienic plan.

Thorough inspection of workshops, public stores, and food-stuffs would also reveal numberless abuses which endanger health, and would indicate the reforms required for each case.

The inspection of schools will accomplish a mission of the utmost importance, up to the present unknown in Cuba. The department inspects the schools, takes care of vaccination, examines the eyes of children, provides regulations to check the spread of contagious diseases, and the Board of Education undertakes to provide hygienic buildings for the schools, and has already established the teaching of hygiene in all of them. This is all very good and sound, but it is not enough. The complete inspection of

children is not practised rigorously. There do not exist statistics showing the number of consumptives among the school population.*

Professor Grancher has proved that in the schools of Paris tuberculosis attacks children in a proportion of 15 per cent., while we do not know what the rate is in our schools. The doctor, in his inspection of the school, is required to make a systematic examination for morbid tendencies, and particularly for incipient tuberculosis.† A child suffering with consumption cannot follow the school life and is a danger to his schoolmates. The early diagnosis of consumption in a child allows us not only to prevent the spread of the disease, but also to give him proper treatment.‡ We shall not insist longer on the extreme importance of this matter, nor have we time now to discuss the necessity of establishing a careful watch over the health and development of children in school. It is necessary to insist on the teaching of hygiene as a part of the child's education, and it is also required to organize the medical inspection of the schools in a more accurate manner. I will not now fix my attention on the best methods of doing that work, its limits and its scope. I will merely recall what I have recommended to the Board of Health. Medical inspectors should be appointed for that exclusive purpose, and I am pleased to see that same affirmation is made by Dr. Willis Brend before the International Congress of School Hygiene.

In the last twenty years it has been understood that the best formula of protection of the adult against phthisis lies in the systematic protection of the first age and infancy; that is, in the preparation of a ground of resistance for the future.§ This inspection, if well practised, would report the condition of children in the schools. We should be informed of the number of the sound and the sick ones, and it would be naturally more easy to determine what ought to be done for the benefit of the latter, and would bring about the creation of special open-air schools, vacation colonies, etc. In this point, also, statistics with their systematic information would do a most important work.

* The School population of Cuba (ages between five and fifteen) in May, 1908, was as follows:

	Males.	Females.
City of Havana	7,727	7,814
Havana Province	16,898	15,573
Oriente	13,407	12,603
Matanzas	9,071	8,680
Sta. Clara	16,733	14,236
Camaguey	3,656	3,395
Pinar del Rio	9,065	6,059
Totals	76,557	68,360

† Lecture of Sir Lauder Brunton, Second International Congress of School Hygiene, London, 1907.

‡ Ch. Cornillot and J. Montelli, loc. cit.

§ Ch. Cornillot and J. Montelli, loc. cit.

But to make these agencies effective, it is necessary to provide ample resources, a complete and competent corps of officials, and recognize its importance and authority; and all this is the duty of the government.

On the other hand, the labor of gathering statistics would be relatively easy in the republic of Cuba, by reason of its geographical condition, its isolation, small population, and the concentration of this population in the important cities and towns, which would make it possible to count accurately the number of consumptives, and to know every one leaving or entering its territory. In the problem we are studying prophylaxis is not the only consideration. The sick must also be attended to, and this is the function of the hospital, the sanatorium, and the dispensary. It is necessary that advanced cases of consumption among the poor be made the object of more consideration and protection. Just now a strange regulation has been enforced, providing that such cases shall only be admitted in the hospitals existing in the capitals of the provinces and in the city of Cienfuegos.

Regarding sanatoriums, the only sanatorium for the poor has recently been opened in Havana. It is necessary, in my opinion, to establish more of the same kind in the interior of the island, and at the same time to foster and stimulate the creation of private establishments of the kind in some of the many places in the island wherein a large number of patients would surely find relief or cure without being obliged to leave the country.

All this work, of course, is slow and complicated. We are aware of that. We do not expect to see it realized in one day, nor in one year; but we believe that it is possible, and it should be founded on better conditions, in view of the small means at our disposal at present to fight tuberculosis, and the little efficiency shown by private associations. Tuberculosis does not diminish. On the contrary, the statistics in Cuba show that the proportion of mortality is on the increase. (See Tables A and B.)

The solution of the problem of tuberculosis is a government function, and to the government belongs the obligation to start, to organize, and to direct the same. The government has in its hands the necessary means, and does not lack the resources, which, after all, might not be so great as it might appear at first sight, the magnitude of the enterprise taken into consideration. Well developed, the antituberculosis problem is a problem of general hygiene, and in the end an economic work. To support this assertion it is only necessary to think of the number of useful lives that the disease takes away every year from all nations.

The State ought to protect the life and property of the citizens; ought to come to the defense of the poor and to the assistance of the sick, or, as Professor Grancher puts it, the living and the sound ones have a right to the protection of their life and health, which constitute a property as worthy of

TABLE A.—MORTALITY IN THE CITY OF HAVANA FOR THE LAST EIGHT YEARS.

1900	851
1901	900
1902	949
1903	1027
1904	1161
1905	1179
1906	1153
1907	1176

TABLE B.

Provinces.	1902.		1903.		1904.		1905.		1906.		1907.	
	Pulmonary Tuberculosis.	Other Tuberculosis.	Pulmonary Tuberculosis.	Other Tuberculosis.	Pulmonary Tuberculosis.	Other Tuberculosis.	Pulmonary Tuberculosis.	Other Tuberculosis.	Pulmonary Tuberculosis.	Other Tuberculosis.	Pulmonary Tuberculosis.	Other Tuberculosis.
Pinar del Rio	418	40	289	34	328	45	320	48	320	55	348	74
Habana	1357	152	1427	147	1511	143	1540	182	1483	187	1512	231
Matanzas	574	80	555	70	549	77	538	72	526	93	508	78
Santa Clara	690	63	659	76	686	66	655	97	710	89	672	124
Camaguey	121	19	104	23	82	15	114	28	95	14	113	22
Oriente	442	46	406	58	389	67	442	65	426	94	425	81
Total	3602	400	3440	408	3545	413	3609	492	3560	532	3578	610
Grand total of deaths	25,512		23,982		25,198		27,345		30,021		34,000	
Rate per 1000 do.	141.18	15.67	143.44	17.01	140.68	16.39	131.98	17.99	118.58	17.72	105.23	17.94
Rate per 10,000 inhabitants	18.01	2.00	17.20	2.04	17.72	2.06	18.04	2.46	17.80	2.66	17.89	3.05

respect, at least, as a title of rent or a house. And the consumptive, for his part, has also the right to ask the State: "Can you admit me to a special establishment where I cannot be of any danger to the rest of the people and wherein I can be taken care of?" (Bouchard). The municipality and the province might contribute to the work, and even the poor classes, in their own behalf, might bind themselves to organize insurance associations against the disease which would furnish important resources. Be it sufficient to recollect that this method, adopted in Prussia in 1884, is the basis of the system organized in that nation against tuberculosis, and that the reduction of mortality noted in that country is principally due to this organization. The private associations would coöperate with the government as auxiliaries, and, provided with the protection and influence which they do not enjoy at present, their action would be most fruitful.

We have pointed out every particular. To design a plan of work would be easy. The only thing needful for success is an earnest pledge to fight

tuberculosis, a determination to carry on the fight with as much energy as has been shown in that against yellow fever.

Let us hope that the Government of the new republic will recognize all the importance of the tuberculosis problem and attend to its solution with the necessary means.

El Problema de la Tuberculosis en Cuba.—(JACOBSEN.)

El problema de la tuberculosis, es el mismo en Cuba que en otros paises, considerado en sus lineas generales. La tuberculosis abedece aqui á iguales causes y tiene las mismas expresiones clínicas que en otras partes. Mas la existencia de numerosas manufacturas de tabaco, que son sin duda grandes focos de tuberculosis dan cierto caracter especial al problema en Cuba. Otro caracter del problema en nuestro pais, es que hasta ahora a lo menos, las Sociedades particulares, la Liga entre otras, y la acción privada, carecen de los recursos necesarios para hacer, en el sentido de la Profilaxia, una acción realmente eficaz y por eso, mas que en ninguna parte, deben ser robustecidos estos trabajos particulares, por la acción del Estado. En Cuba el problema de la tuberculosis debe ser principalmente función del Gobierno.

Por otra parte, y es este otro hecho especial,—la condición geográfica de la Isla, permite los trabajos de estadística con mas exactitud y amplitud, y este dato es fundamental en el problema de la tuberculosis.

Fija el autor la importancia de ésta y propone entre otras reformas, una completa y robusta organización de la Estadística de tuberculosis en Cuba. Se refiere á las Hospitales, Sanatorios y Dispensarios y aboga por el establecimiento inmediato de Dispensarios en Provincias, por lo menos uno en cada ciudad importante de la Isla.

Hace antes extensas consideraciones sobre todos estos particulares, y termina recordando que el problema de la tuberculosis afecta todos los intereses, y que la Liga Contra la Tuberculosis ha trazado en sus lineas generales la organización de los servicios públicos de tuberculosis.

Le Problème de la Tuberculose en Cuba.—(JACOBSEN.)

Le problème de la tuberculose en Cuba est le même que dans tout autre pays; la maladie relève des mêmes causes et présente les mêmes caractères cliniques. Pourtant le fait qu'il y a en Cuba un grand nombre de fabriques de tabac lui prête un caractère un peu spécial, puisque ces fabriques sont sans doute les sources principales de la maladie. Un autre caractère spécial c'est que, jusqu'à present au moins, les sociétés particulières—et parmi elles la Ligue—comme les agences particulières, ont manqué du

capital nécessaire pour entreprendre des mesures préventives, et pour qu'elles deviennent vraiment efficaces il faudrait qu'elles fussent entretenues et contrôlées par le gouvernement. D'un autre côté les conditions géographiques de l'île permettent facilement de rassembler des statistiques exactes et étendues, qui forment la base du problème de la tuberculose. L'auteur insiste sur l'importance de cette œuvre, et parmi d'autres avis propose une organisation puissante pour l'assemblage de statistiques en Cuba. En parlant des hôpitaux, sanatoriums et dispensaires, il demande instamment l'établissement immédiat de dispensaires dans les Provinces —au moins dans chaque grande ville de l'île. Il s'étend aussi sur d'autres questions. Il conclue que le problème de la tuberculose touche à tous les intérêts et que la Ligue pour l'Empêchement de la Tuberculose a tracé les grandes lignes de l'organisation des services publiques contre la tuberculose.

Das Problem der Tuberkulose in Cuba.—(JACOBSEN.)

Das Problem der Tuberkulose ist im allgemeinen in Cuba dasselbe, wie in irgend einem anderen Lande, und die Krankheit daselbst ist von denselben Ursachen abhängig und zeigt dasselbe klinische Bild. Jedoch die Anwesenheit einer grossen Anzahl von Tabaksarbeitern gibt dem Problem in Cuba einen gewissen speziellen Charakter, da diese zweifellos die grössere Quelle der Tuberkulose sind. Ein anderes spezielles Wahrzeichen von Cuba ist, dass bisher zum mindesten den privaten Gesellschaften—der Liga unter ihnen—und privaten Agenturen die nötigen Hilfsmittel gemangelt haben um prophylaktische Massregeln durchzuführen, und, um wirklich wirkungsvoll zu sein, sollten sie von der Regierung unterstützt oder unter ihrer Controlle sein. Andererseits gestatten die geographischen Verhältnisse der Insel leicht eine ausgedehnte statistische Tätigkeit, welche ein Fundament in dem Problem der Tuberkulose ist. Der Autor malt diese Notwendigkeit aus und schlägt unter anderem eine kräftige Organisation zur Sammlung von Statistiken auf Cuba vor. Er nimmt Bezug auf die Hospitäler, Sanatorien und Ambulatorien und plaidirt für eine eilige Organisation von Ambulatorien in den Provinzen—zum mindesten eines in jeder grossen Stadt der Insel. Er zieht auch andere Fragen in ausgedehnter Weise in Erwägung. Die Schlussfolgerungen sind, dass das Problem der Tuberkulose alle Interessen berührt und dass die Liga für die Verhinderung der Tuberkulose in grossen Zügen die Organisation des öffentlichen Dienstes gegen die Tuberkulose angedeutet hat.

THE TUBERCULOSIS PROBLEM IN THE PHILIPPINES AND THE ELIMINATION OF INTESTINAL PARASITES AS THE FIRST STEP IN ITS SOLUTION.

By Victor G. Heiser,

Passed Assistant Surgeon, Public Health and Marine Hospital Service; Director of Health and Chief Quarantine Officer for the Philippine Islands; Professor of Hygiene, Philippine Medical School.

In recommending to any government a measure which has for its object the improvement of the public health, not only the medical men directly concerned, but the whole medical profession as well, shares in the responsibility involved.

Success following the adoption of a recommendation redounds to the credit of the whole profession; a failure is often used as evidence of the unreliability of medical advice. It is therefore believed that those medical men who are charged with the duty of recommending legislation to legislative bodies should, whenever possible, consult with their medical brethren in order that crystallized ideas submitted may have the support of their majority.

Before a government, be it national, State, or municipal, is asked to give any very substantial support to a health measure, it is desirable to show with reasonable certainty that the public health will be improved, that the estimated cost will be given, that the economic value is apparent, and that it is backed up by experimental or other evidence.

With the foregoing conditions in mind the following is respectfully submitted.

It has only been within the past few years that serious attention has been given to the rôle which intestinal parasites, and more particularly the uncinaria or hookworm, play in the morbidity and mortality statistics of tropical and semitropical countries. Most striking evidence of their importance has recently become available in Manila.

In the large insular prison called Bilibid, over three thousand prisoners are constantly confined. From 1902 to 1905 there was an uninterrupted increase in the death-rate until a mortality of over 200 per thousand per annum was reached. Tuberculosis claimed over 50 per cent. of the victims during 1904. Since December 1, 1904, all prisoners afflicted with pulmon-

ary tuberculosis have been isolated in a separate hospital located in another portion of the city. During the year 1905 the number of deaths from tuberculosis still increased, although the number of new infections was growing less. The general mortality of the prison was also still ascending. The sanitation of the prison was then transferred from the control of laymen to the Bureau of Health. The regularly recognized sanitary measures were at once put into effect, overcrowding was relieved, sewage disposal improved, the sick placed under treatment more promptly, and other well-known measures adopted. The death-rate soon fell to about 75 per thousand per annum, but further reduction seemed impossible. A study of the prison's sick showed that they were dying with ailments to which they should not have succumbed. Their powers of resistance were evidently impaired. The evidence pointed to some extraordinary drain on the system. There was plenty of food, but evidently imperfect nourishment. With a view to discovering the cause, a routine practice of microscopically examining the feces of every prisoner was inaugurated. Eighty-four per cent. were found infected with intestinal parasites. Of these, 60 per cent., or 52 per cent. of the total number of prisoners, had hookworms, 59 per cent. had whipworms, 23 per cent. amœbæ, and 21 per cent. harbored some other species of parasite.

Over half of the prisoners were hosts for at least two kinds of worms. Active therapeutic measures were inaugurated to rid the prisoners of the causes of these debilitating troubles, and the result was immediately satisfactory—the death-rate fell to less than 20 per thousand. The following table, giving the deaths from tuberculosis at Bilibid by months and years, considered in connection with the foregoing, shows that even after isolation of tubercular patients has been carried out, still further reduction in the incidence of tuberculosis may be brought about by increasing the resistance of the individual; that is, by removing the intestinal parasites. For instance, in 1905, the year after the system of isolation was put into effect, there were still 179 deaths from tuberculosis. Much improvement, however, could perhaps not be expected until the following year, and an examination of the figures shows that the tuberculosis mortality did drop to 51. In view of the fact that the elimination of the intestinal parasites was actively begun during the second half of this year (1906), a part of the credit for this satisfactory result must be attributed to their removal, and that this assumption is correct is shown by the fact that in the year 1907, when the elimination of the intestinal parasite was the only remedy used, the deaths fell to 35, and for the present year, based upon the rate of the earlier months, the number should be 28. It is therefore apparent that in a prison which has an average population of about 3000, and in which there were as many as 179 deaths per annum from tuberculosis, the number of cases was reduced to 28 per annum, and that this was brought about by isolating the tubercular sick, by providing

more light and air, and by removing the intestinal parasites—the latter measure having largely contributed to the result. It is perhaps also worthy of mention in passing that the statistics show that the greatest number of deaths during each year occurred between the months of June and October, which correspond to the rainy season.

DEATHS FROM TUBERCULOSIS, BILIBID PRISON.

	1904.	1905.	1906.	1907.	1908.	Total.
January	25	8	3	2	0	38
February	32	0	2	4	0	38
March	5	17	7	7	8	44
April	6	4	1	4	2	17
May	10	11	6	0	2	29
June	10	17	3	4	2	36
July	5	13	3	4	..	25
August	13	29	3	3	..	48
September	17	45	8	1	..	71
October	16	21	7	2	..	46
November	9	7	3	1	..	20
December	13	7	5	3	..	28
Total	161	179	51	35	14	440

Some thousands of stool examinations made in the Philippines outside of Bilibid show that about the same percentage of infections may be expected among the general population.

If, then, we have a prophylactic measure which will effect a marked reduction in the tuberculosis mortality, and at the same time diminish the incidence of a considerable number of other diseases (see sick report published in Annual Reports of the Bureau of Health during past four years), it would appear only rational that this should receive first consideration. There is no desire whatsoever to ignore those measures which have already done so much to curtail the ravages of tuberculosis in other parts of the world; when funds are available, these should all be tried. If not, then it would undoubtedly be best to choose that which will give the greatest results. In a city like Manila a reduction in the mortality of 5 per thousand would mean a saving of 1125 lives annually; at least 150 of these would be from tuberculosis. These figures are for one city. If other tropical countries with similar conditions adopted the same measures for their millions of population, the result is self-evident.

It is believed that the foregoing facts make concrete proof of what may be accomplished in a tropical country, and are sufficient evidence to lay before a legislative body in order that the necessary authority and fund may be provided to put into effect the measures which are indicated.

It may be of interest to present the following table, which shows that tuberculosis steadily increased in the city of Manila until June 30, 1907, and that since that date there has been a decline.

TUBERCULOSIS IN THE CITY OF MANILA BY YEARS.

Year Ending:	Total Deaths from all Causes.	Deaths from Tuberculosis.								
		Larynx.	Lungs.	Meninges.	Abdomen.	Spine.	Other Organs.	General.	Total.	Percentage
8 : 31 : '03	8,892	45	789	20	35	1	7	5	902	10.1
8 : 31 : '04	10,781	59	958	32	35	2	3	13	1,102	10.2
8 : 31 : '05	8,926	59	971	31	45	2	7	17	1,132	12.7
6 : 30 : '06	9,486	23	1,209	41	43	1	8	29	1,354	14.3
6 : 30 : '07	8,251	18	1,146	44	45	..	9	23	1,287	15.6
6 : 30 : '08	8,945	12	1,036	37	37	3	6	36	1,167	13.0
Total....	55,281	216	6,111	205	240	9	40	123	6,944	12.6

The increase in the disease prior to 1907 was in all probability due indirectly to the increase in rents, which resulted in the poorer classes crowding together more and more; in consequence, the light and ventilation per capita in each habitation constantly decreased.

About two years ago an active educational campaign for the prophylaxis and treatment of tuberculosis was begun. A pamphlet was prepared, the contents of which are taught in every public school throughout the Philippine Islands. Popular articles are frequently published in the daily press. Rigid inspection is made of all meat and other food products likely to contain tubercle bacilli; antispitting ordinances were passed and are being gradually more and more rigidly enforced; overcrowding, especially in tenement-houses, has been prohibited; and light and ventilation have been provided for hundreds of houses. Whether these measures are responsible for the reduction in the number of deaths is, of course, not positively known, but it is not unreasonable to infer that much of the credit is due to the improved sanitation. The foregoing shows that at least a start has been made in combating this disease in the Philippines.

If the conclusion of this Congress should justify it, it is proposed, in the coming year, in addition to the measures specifically directed against intestinal parasites, to open a free dispensary in the city of Manila for tubercular cases, and to spend about $20,000 for the treatment of the tubercular sick by the open-air method.

Summary.

1. Before legislation on public health measures is requested, certain conditions should exist. Among these is reasonable certainty that the public health will be improved; that the cost of putting it into effect be estimated; that the economic value be made apparent; and that it is backed up by experimental or other reliable evidence.

2. The annual mortality among 3000 prisoners was reduced from 75 to 20 by the elimination of intestinal parasites; 50 per cent. of this number formerly died of tuberculosis. This was accomplished after the measures heretofore recommended by good authorities had been faithfully but unsuccessfully proposed.

3. Increasing the resistance of an individual to tuberculosis by the elimination of intestinal parasites has proved very effective in reducing the incidence of the disease.

4. As a result of a campaign of education, and by providing more hygienic houses, the number of cases among the general population of Manila was apparently reduced from 15.6 to 13 per cent. of the total mortality.

Conclusion.

It is believed that the foregoing facts warrant the assertion that in tropical countries, where tuberculosis and hookworm disease are coexistent, the elimination of the hookworm will produce better results in diminishing the mortality from tuberculosis than any measure that has as yet been tried upon a large scale; at the same time the general mortality can be markedly reduced.

TUBERKULOSE-GESETZGEBUNG IN DER SCHWEIZ.

Von Dr. Med. Max Bollag,
in Liestal.

Ein einheitliches, das ganze Land umfassendes Tuberkulosegesetz giebt es in der Schweiz noch nicht, doch haben mehrere Landesteile (Kantone) Tuberkulosegesetze und Tuberkuloseverordnungen erlassen, so dass jetzt schon (1908) mehr als ein Drittel der Bevölkerung unter dem Einfluss einer durch Behörden geregelten Tuberkulosebekämpfung steht.

Der bedeutende, volksreiche Kanton Bern hat durch Volksabstimmung ein Tuberkulosegesetz angenommen, das dem Staate die Verpflichtung auferlegt, sich an der Errichtung und am Unterhalt von öffentlichen Krankenanstalten, welche die Verpflegung tuberkulöser Personen zum besonderen Zweck haben (Sanatorien, Tuberkulosespitäler, Tuberkulosestationen in allgemeinen Spitälern), mit Geldbeiträgen zu beteiligen und ebenso andere, im Dienste der Tuberkulosebekämpfung stehende Institute zu unterstützen (Fürsorgestellen, Erholungsstätten, Ferienkolonieen, ländliche Kolonieen, Arbeitsvermittlungsstellen für Tuberkulöse, u. s. w.). Dasselbe Gesetz sieht auch die Einführung von Unterricht über Tuberkulose in Lehrerseminarien und Schulen vor und erlaubt überhaupt die Aufstellung näherer Vorschriften zur wirksamen Verhütung und Bekämpfung der Tuberkulose (Anzeigepflicht, Desinfektionspflicht, Spuckverbot u. dgl.).

Die Verordnung des Kantons Zürich enthält Bestimmungen über das Aufstellen von Spuckgefässen, unentgeltlicher Sputumuntersuchung, schreibt dem Arzte vor, offene Tuberkulosefälle ohne Ausnahme den Gesundheitsbehörden anzuzeigen, ebenso den Wohnungswechsel von Personen mit offener Tuberkulose, wenn Ansteckungsgefahr droht. Die Desinfektion der Wohnung soll nach dem Ermessen des behandelnden Arztes bei Wohnungswechsel und bei Todesfall angeordnet werden, dieselbe wird unentgeltlich durch die informierte Gesundheitsbehörde besorgt.

Das Tuberkulosegesetz des Kantons Graubünden legt dem behandelnden Arzte die Pflicht auf, jeden Tuberkulosetodesfall dem Bezirksarzte, der die Desinfektion anordnen muss, anzuzeigen. War ein an Tuberkulose Verstorbener nicht in Behandlung, so fällt dem Hausherrn, beziehungsweise dessen Stellvertreter die Anzeigepflicht zu. Dasselbe Gesetz ordnet die Nach-

forschung der Ursache bei gehäuften Auftreten der Tuberkulose an, stellt ein beschränktes Spuckverbot auf (in Kirchen, Schulen, anderen öffentlichen Anstalten, Eisenbahnwagen) und erleichtert durch billige Taxbemessung der Sputumuntersuchung die Feststellung der Tuberkulosefälle.

Die Verordnung des Kantons Thurgau verlangt, dass dem Bezirksarzte angezeigt werde jeder Todesfall von Lungen- oder Kehlkopftuberkulose, ebenso jeder Wohnungswechsel eines an vorgeschrittener Lungen- oder Kehlkopftuberkulose Leidenden, oder von sonstiger hochgradiger Gefährdung der Umgebung eines solchen Kranken durch ungünstige Wohnungsverhältnisse, Wohnen in Schulhäusern, Erziehungsanstalten, Kuranstalten, durch Tätigkeit bei der Herstellung und den Verkauf von Lebens- und Genussmitteln in Fabriken, Werkstätten u. s. w. Bei Lungen und Kehlkopftuberkulose und bei Wohnungswechsel bei Personen mit vorgeschrittener, die Umgebung gefährdender Tuberkulose ist die Desinfektion durchzuführen.

Die Regierungsverordnung des Kantons Appenzell a. Rh. empfiehlt als dringend notwendig die Desinfektion bei Tuberkulose. Die Desinfektion wird auf Staatskosten ausgeführt.

In der Landschaft Davos (zahlreiche Privat- und Volksheilstätten) besteht ein Tuberkulosegesetz, welches die Desinfektionspflicht bei Wiederbenützung von Räumen, die vorher von Tuberkulösen bewohnt waren, sowie die Anzeigepflicht beim Wegzug eines tuberkulösen Kranken vorschreibt, den Lungenkranken das Tragen von Taschenspucknäpfen gebietet, das Aufstellen von Zimmerspucknäpfen anordnet und das Ausspucken Lungenkranker im Freien, auf Strassen, Trottoirs, Fusswegen und auf den Schnee als unstatthaft erklärt.

Eine ähnliche Verordnung von Arosa (Kurort für Tuberkulöse mit Privatsanatorien) macht die Desinfektionspflicht von einem ärztlichen Verlangen abhängig, verpflichtet jeden Vermieter zur Anzeige des Wegzuges eines Tuberkulösen, enthält genaue Angaben über die Behandlung der Wäsche von Tuberkulösen, gebietet das Aufstellen von Spucknäpfen in Korridoren und Aborten und verbietet das Ausspucken auf Wege, Strassen und Schnee.

Leysin, ein Kurort mit mehreren Privatsanatorien für Lungenkranke, hat ebenfalls ein Spuckverbot aufgestellt wie Davos und ordnet die Desinfektion an beim Wegzug Tuberkulöser.

In mehreren Kantonen ist die Bekämpfung der Tuberkulose auf das Arbeitsprogramm der politischen Parteien aufgenommen worden (Basel, Solothurn) und es ist Aussicht vorhanden, dass bald alle Gebiete der Schweiz ihre Tuberkulosegesetze haben.

Die oben genannten, in verschiedenen Landesteilen aufgestellten Gesetze und Erlässe sind nicht nach einer Norm geschaffen, sondern zeigen, dass die Bewegung gegen die Tuberkulose noch neu ist und dass die letzten Konsequenzen, welche Tuberkuloseforschung, -experiment und -statistik zu

ziehen gestatten, den Gesetzgeber erst nach und nach veranlassen, eine überall und immer geltende Norm aufzustellen. Jedenfalls darf dem Gesetzgeber auf Grund unserer schweizerischen Erfahrung empfohlen werden, der fortschreitenden Entwicklung der Tuberkulosebekämpfung seine Aufmerksamkeit zu schenken und die Gesetze so zu gestalten, dass der fortschreitenden Erkenntnis ohne Gesetzesänderung Rechnung getragen werden kann, denn nichts verschafft dem Volke mehr Zweifel über den Wert prophylaktischer Massnahmen als rasch und oft wiederholte Abänderung von Gesetzesbestimmungen und Massnahmen gegen Krankheiten. Um den Behörden wegleitende Normen für die Tuberkulosegesetzgebung geben zu können, hat die schweizerische Zentralkommission zur Bekämpfung der Tuberkulose in ihrer letzten Hauptversammlung (Juli 1908) die Frage der Anzeigepflicht und der Desinfektion bei Tuberkulose eingehend behandelt und die Ausarbeitung diesbezüglicher Anleitungen beschlossen.

THE PRESENT STATUS OF ANTITUBERCULOSIS WORK IN CANADA (1908).

PREPARED FOR THE CANADIAN COMMITTEE OF THE INTERNATIONAL CONGRESS ON TUBERCULOSIS.

By J. H. Elliott, M.B.,
Toronto, Canada.

In the preparation of this report an endeavor has been made to incorporate everything which has a bearing on special antituberculosis work in Canada. It is a short review of the various agencies at work, and to some extent of what has been accomplished. The data have been secured from the officials of the Dominion and Provincial Governments and their reports, from the secretaries of various associations, and from other sources.

Canada has an area of 3,745,574 square miles. Its present population is approximately 6,500,000, and annual deaths from tuberculosis 13,500.* The death-rate from tuberculosis, according to census of 1901, is 199 per 100,000 population.

The activities of the Federal government *re* tuberculosis appear in its relation (1) to the Indians throughout the Dominion, who are their wards, (2) immigration, (3) the import and export of cattle, while, by consent of the provinces, (4) the control of disease in animals is given to the Federal authorities.

Public health matters in general, hospitals, asylums, etc., are delegated to the provinces.

Federal Measures.

1. An annual grant of $5000 is made to the Canadian Association for Prevention of Tuberculosis to assist in its work.

2. *Tuberculosis in Immigrants.*—In 1907 immigrants to the number of

* The census of 1901 gave population 5,371,315. The special 1906 census of Manitoba, Saskatchewan, and Alberta showed an increase in those provinces of 745,329. A recent official report of Ontario estimates an increased population in that province of 200,000. There has also been an increase in British Columbia and Quebec, justifying a present estimate for the Dominion of 6,500,000—an increase of 25 per cent. Deaths from tuberculosis according to census of 1901 were 10,708; an increase of 25 per cent. makes present annual deaths 13,485.

196,143 passed medical inspection at sea-port; 16 were debarred on account of tuberculosis. The Immigration Act provides that any immigrant who becomes a public charge within three years may be deported. In 1906 and 1907, of about 350,000 immigrants, at least 100 developed tuberculosis and became public charges. The immigration officials refuse landing to those evidently tuberculous who have not sufficient funds for their support.

3. *Tuberculosis Among the Indians.*—There are 375 bands of Indians, with a population of 110,345; total deaths, 1906, 2511. The death-rate is two or three times that of the general population, the excessive mortality being due to tuberculosis. The death-rate is much higher in the newer provinces than in the east, where the bands have been longer in contact with civilization. For the past three years there has been an increase in the Indian population.

The chief medical officer of the Department of Indian Affairs has been endeavoring to improve sanitary conditions on the reserve, both in the homes and schools. A beginning has been made in removing tuberculous patients from their homes to tent hospitals on the reserves; four have been installed in the northwest, three on large reserves in Ontario, and two other bands supplied with tents. A trained nurse is placed in charge of each tent hospital, and, where possible, she acts as district sanitary visitor.

A medical inspection of some 35 Indian industrial and boarding-schools showed a sad lack of ventilation, while the records of discharged pupils showed an alarming death-rate. Improved ventilation and instruction or isolation of children with open glandular or pulmonary tuberculosis have been instituted.

Bovine Tuberculosis.—The Veterinary Director-General writes: "In view of the fact that no definite, satisfactory, and intelligent method of dealing with bovine tuberculosis has so far been established, the regulations deal almost entirely with export and import cattle. Cattle imported from the United States for breeding purposes or milk production, if unaccompanied by a satisfactory tuberculin test chart signed by an officer of the United States Bureau of Animal Industry, are placed in quarantine and tested. The same rule is applied to cattle of similar classes imported from Mexico. Cattle of any kind coming from other countries are tested in quarantine. The animals comprising a few herds which are placed entirely under the control and supervision of our officers are also tested by and at the expense of the Department. With these exceptions no testing with tuberculin is now undertaken officially, although it is supplied free to qualified veterinarians when employed by owners of cattle, on condition that the results of all tests made by them are sent in to the Department on forms supplied for that purpose. Any animals reacting to tuberculin are permanently ear-marked by cutting a capital T out of the right ear.

"This Department has now been in possession of a tuberculous herd for nearly three years, which have been kept on a farm procured specially for this purpose in the vicinity of Ottawa. The animals in question are under the personal supervision of the Veterinary Director-General, and are being kept out in the open during the winter as well as the summer months. They have not been housed at any time, with the exception of temporary short periods while being submitted to tuberculin, although they have free access during the winter months to large open sheds, but are fed out in the open. A close watch has been kept on each individual animal, in order that reliable information can be obtained as to the probable effect of the application of the principles of the open-air treatment, as also what effect it may have upon the susceptibility of the individual organism, as well as many other phases of the question."

The Department supplies tuberculin free to any municipality for the purpose of testing the herds supplying milk to such municipality; a report of all tests made to be sent to Ottawa.

Provincial Measures.

British Columbia.—(Reported by Dr. C. J. Fagan, Secretary of the Provincial Board of Health.) The province has enacted: (1) That all cases of tuberculosis shall be reported to the medical health officer; (2) that in case of death the room or house shall be disinfected; (3) that spitting in public is unlawful; (4) that all milk dealers must produce a certificate, signed by the provincial veterinary surgeon, that the herd from which their supply is derived is free of tuberculosis.

Sums totaling $50,000 have been voted by the legislature to the British Columbia Antituberculosis Association to aid in erection of their sanatorium for incipient cases and hospital for advanced cases.

The province gives a per diem grant of fifty cents for all hospital patients.

The Board of Health advocates that all general hospitals make special provision for tuberculosis patients. Vancouver Hospital has provided a special building for advanced cases.

The provincial laboratory examines sputum free of charge.

Alberta.—The public health act of this new province enforces notification of all cases of tuberculosis, notification of change of residence, and disinfection after death or removal.

In future all general hospitals must make provision for care of tuberculous patients. Sputum is examined by provincial laboratory free.

Saskatchewan.—This province enacted legislation enforcing compulsory notification and disinfection.

In the absence of special hospitals the provincial health officer is insisting that all general hospitals receiving government aid must make provision

for care of tuberculous patients. Shacks and tents are supplied by the province where no hospital exists. Destitute cases are supplied with milk and eggs at expense of the province.

Sputum is examined by provincial laboratory free.

The public health branch of the Department of Agriculture distributes a large amount of tuberculosis literature.

Manitoba.—There is little special legislation. All samples of sputum are examined in provincial laboratory free of charge.

Municipalities may pass antispitting by-laws.

A charter has been granted to a board of trustees to establish a sanatorium for the province. It is to be indirectly under provincial control and will receive aid from the legislature, and municipalities are empowered to contribute out of the municipal funds for building and maintenance.

All diseased meat is seized and destroyed, but in the case of dairy cattle the great obstacle to efficient legislation is the question of compensation.

Municipalities may pass by-laws making tuberculin test compulsory in all herds supplying milk to the municipality.

Ontario.—The province of Ontario has enacted special legislation to assist in the erection of sanatoriums, granting (grant not to exceed $4000) one-fifth of the cost of a sanatorium erected by any municipality or recognized association. Under this clause four sanatoriums have received each $4000.

In addition to assisting in the initial cost, the government grants assistance to the extent of $1.50 per week per patient for all public ward patients, in lieu of the ordinary hospital grant, which is about twenty cents per day.

The act respecting sanatoriums also provides that no institution shall be erected within 150 yards of any residence. The permission of the local board of health must always be secured.

Municipalities are empowered to contribute toward building and $1.50 per week per patient for maintenance of municipal or existing sanatoriums. Toronto contributes $3.50 per week.

The Factories and Shops' Acts provide for proper ventilation of factories and workshops; 300 cubic feet air-space must be allowed in all factories for each employee. The Inspector of Factories has power to require the employer to provide sufficient spittoons and keep the same clean. Also to order removal of dust, when this is possible, by mechanical means.

Municipalities are empowered to pass anti-spitting ordinances. Also to regulate the erection or occupation of dwellings on narrow streets, alleys, lanes, or in crowded or unsanitary districts.

In 1906 the Legislature voted $15,000 to the Muskoka Free Hospital for Consumptives.

The Secretary of the Provincial Board of Health has gathered a tuber-

culosis exhibit along the lines of that of the National Association for Study and Prevention of Tuberculosis. This is placed at the disposal of local boards of health and antituberculosis associations, to aid in local work against the disease. For six or more weeks in the autumn this exhibit appears at rural fairs.

The provincial laboratories (Toronto and Kingston) examine sputum free of charge.

Quebec.—(Reported by Dr. Elzear Pelletier, Secretary of the Provincial Board of Health.) In January, 1895, the Legislature set apart 400 acres in Trembling Mountain Park for sanatorium purposes, but nothing has been done to supplement this. In June, 1905, the province granted 137 acres on Lake Edward to the Quebec League for sanatorium purposes.

Legislative enactments: (1) Make open tuberculosis notifiable to municipal authorities. (2) Make disinfection obligatory after death or removal. (3) Forbid spitting in streets, roads, public places, buildings, and conveyances. (4) In regard to habitations: provide for (*a*) a minimum cubic space, (*b*) natural lighting, (*c*) prohibition of the use of cellars for day or night occupation, (*d*) minimum cubic space in night refuges, (*e*) open spaces around dwellings, (*f*) damp courses in certain cases. (5) Respecting factories: provide for lighting, cubic space aëration and ventilation, evacuation of dust, etc. (6) In regard to educational institutions, provide for cubic space, ventilation, natural lighting, prohibition of dry sweeping. (7) In regard to dairies, provide, among other things, for (*a*) the notification of tuberculous cases, (*b*) the isolation of suspected tuberculous cows until a veterinary surgeon has verified to the udder not being involved, the certificate to be renewed every three months at least and to be put aside whenever bacterial examinations would show the existence of the bacillus in the milk. (8) Provide for confiscation of meat from tuberculous animals, about on the lines suggested by the Royal Commission on Tuberculosis.

Tracts and sanitary bulletin are distributed gratis.

Sputum is examined at provincial laboratory free of charge.

At the last session of the legislature the government was empowered to name a royal commission to study tuberculosis in the province.

New Brunswick.—The New Brunswick Medical Society and representative business men have met the government urging the establishment of a provincial sanatorium. The Provincial Board of Health has made similar recommendations. The government has promised to consider this at the next session of the Legislature.

Nova Scotia.—(Reported by Dr. A. P. Reid, Provincial Health Officer.) The Provincial Board of Health is active in its endeavors, and the subject is dealt with annually in the secretary's report.

There is legislation *re* spitting in public places.

All city schools are regularly medically inspected and the country schools are getting into line.

Notification is not yet enforced.

For ten years there has been a provincial laboratory for examination of sputum.

City boards of health are active, those of small municipalities dilatory.

There is a provincial sanatorium of 25 beds; initial cost, $20,000; annual grant, $9,000. The province does not intend to provide beds for all, but has undertaken this work rather for its educational value.

Prince Edward Island.—No board of health regulations *re* tuberculosis (1906).

Municipal and Local Measures.

In a former report on this subject* a tabular statement showed the measures in force in the principal cities and towns of Canada.

1. *Antispitting By-laws.*—British Columbia and Quebec have provincial ordinances; elsewhere it is a municipal measure, and such by-laws have been adopted in most cities and towns. In some towns where by-laws have not been passed notices are posted by the boards of health. The street railway companies, almost without exception, have notices posted.

2. *Notification.*—Notification of cases is requested by provincial enactment in British Columbia and Quebec, where it is hoped that this measure may soon be rigidly enforced. In the other provinces five cities and towns have adopted compulsory, and five voluntary, notification.

3. *Disinfection after Death or Removal.*—In British Columbia, Saskatchewan, and Quebec this is a provincial measure. In the towns where compulsory notification is enforced the measure is carried out by the local board of health. In other towns it is only done at request of a householder.

4. *Building Inspection.*—In Vancouver and Victoria, B.C., and in Winnipeg, Manitoba, the law requires every dwelling-house to be so constructed as to afford light-space and air-space in every room, sufficient for the comfort and health of those living in it. The number of persons who may sleep in each room is also regulated, and effective inspection is provided for. This legislation was intended to prevent the herding together of Asiatics in such a manner as to induce disease, but must be classed as an effective antituberculosis measure. These wise measures have been adopted in Quebec as a provincial enactment.

5. *Milk Inspection.*—As far as can be learned, no special measures have been adopted generally beyond ordinary inspection. The cities of Quebec, Moncton, N. B., Portage, La Prairie, Manitoba, demand compulsory tuberculin test in all herds supplying milk to the city.

6. *Special By-laws.*—The town of Gravenhurst passed in 1899 a special

* British Medical Journal, Sept. 22, 1906, p. 689.

by-law prohibiting spitting in public places and instituting supervision by the board of health of all boarding-houses accepting patients afflicted with tuberculosis.

7. *Inspection of School Children.*—This has been adopted in the cities of Nova Scotia. Is thorough in Montreal, Hamilton, Ottawa, Winnipeg, Regina, Vancouver, Victoria, and Pincher Creek. In Golden Lake district, Alberta, a number of schools are jointly endeavoring to secure the services of a medical inspector. Toronto has adopted a form of inspection.

8. *Local Antituberculosis Organizations.*—A list of these, with a note of the work done, appears elsewhere in this report. In some towns where there is no local association philanthropic societies or individuals have undertaken the work, as, for example, in Stratford and St. Catharines, the King's Daughters provide tents and necessaries for advanced cases; in London private philanthropy provides one or more tents, while in Ottawa the May Court Club has organized a dispensary to assist the local association.

9. *Special Hospitals and Sanatoriums.*—No municipality has built a special hospital or sanatorium for the care of its tuberculous poor. Hamilton and Ottawa assisted their local association in building and assist in maintaining patients at the sanatorium or hospital. Toronto voted $50,000 for a municipal sanatorium, but has not built; instead, has given the amount to the Muskoka Free Hospital for Consumptives and Toronto Free Hospital for Consumptives, on their undertaking to care for all city order patients, the city paying the usual per diem allowance.

In British Columbia various municipalities have voted sums to the sanatorium of the provincial association, and will maintain their patients there; this will be followed in Manitoba when their sanatorium is built.

10. *Admission of Patients to General Hospitals.*—Six towns and cities report no hesitation in accepting tuberculous cases into their hospitals; seven admit, but insist on isolation—some using isolation wards. Four admit only incipient cases.

Vancouver General Hospital has a special building for tuberculous patients. Kingston Hospital has special lean-tos or tents. Tents are also in use in St. Catharines, Ont., Moncton, N. B., New Glasgow, N. S.

The provinces of British Columbia, Saskatchewan, and Alberta, as elsewhere noted, insist on all general hospitals making provision for tuberculous patients.

Dr. James Third (Kingston) writes: "The shacks at the hospital are only for incipient cases, and curiously enough for some years have been occupied by students of the University—tuberculous, of course. So much was the student body impressed with the good results to their fellow-students in adversity, and the general educational value of the shack, that they asked to be allowed to erect one."

11. *Tuberculosis Dispensaries.*—Four cities have dispensaries. In Montreal and Ottawa they exist as special dispensaries; in Toronto and Hamilton in connection with the general hospital. The work of these is detailed below.

Tuberculosis in Children.

In Europe and the United States much attention is just now being drawn to the beneficial effect of the seashore on tuberculous children, and many seaside hospitals for children are being established. For many years the Victoria Hospital for Sick Children in Toronto has, during the summer months, transferred all cases of surgical tuberculosis to the Lakeside Hospital on Toronto Island, with most satisfactory results. This island is a large sandbar in Lake Ontario, one to three miles out from the north shore of the Lake and directly in front of the city of Toronto. "The summer hospital is provided with extensive veranda space, so that the patients may enjoy the maximum amount of sunshine and may sleep in their cots in the open air. The beneficial effects of these surroundings are most obvious; it is not unusual to watch with anxiety a serious case of tuberculous arthritis toward the end of the winter in the city hospital, in the hope of tiding the patient over the necessary time, until he is able to be transferred to the Lakeside Home, where one has every confidence that he will be benefited."*

The Toronto Free Hospital for Consumptives has a special ward for children with pulmonary tuberculosis.

In Montreal the Children's Memorial Hospital deals largely with cases of tuberculosis, and has special pavilions, porches, and tents for open-air treatment.

Antituberculosis Associations.

In the campaign against tuberculosis associations have been formed in many parts of the Dominion; of these, two are national in their scope: (1) The Canadian Association for the Prevention of Tuberculosis, with office at Ottawa, is the central organization for educational and legislative work, and with it the various provincial organizations are in affiliation; and (2) The National Sanitarium Association, with office at Toronto, organized in 1896 to build and maintain special institutions for care of pulmonary invalids. Its two sanatoriums accept patients from all parts of Canada, but the Association has no organization outside the province of Ontario.

There are three provincial associations, and a number of local associations have been and are being organized throughout the Dominion.

The following is as complete a list as it has been found possible to make of the various associations in Canada.

* "Tuberculosis of the Bones and Joints," A. Primrose, in the American Practice of Surgery, vol. iii, p. 586.

The Canadian Association for the Prevention of Consumption and Other Forms of Tuberculosis. Organized 1901. His Excellency Earl Grey, Hon. President; H. H. Miller, M. P., President; J. M. Courtney, Esq., C. M. G., Hon. Treasurer; Rev. Wm. Moore, D. D., Secretary, Organizer, and Lecturer, 102 Bank Street, Ottawa.

National Sanitarium Association of Canada. Organized 1896. Under the patronage of Their Majesties, King Edward VII and Queen Alexandra; His Excellency Earl Grey, Hon. President; Lord Strathcona and Mount Royal, President; W. J. Gage, Esq., Chairman of the Executive Committee; J. S. Robertson, Secretary, 347 King St., W., Toronto, Ont.

British Columbia Antituberculosis Association. Under the patronage of His Majesty King Edward VII. Hon. James Dunsmuir, Hon. President; R. Marpole, Esq., President; Dr. C. J. Fagan, Secretary, Victoria, B. C.

The Manitoba Sanatorium for Consumptives. Dr. R. M. Simpson, Chairman; E. M. Wood, Secretary.

The Provincial Association for the Prevention of Consumption, Charlottetown, Prince Edward Island. His Honor The Lieutenant-Governor, Hon. President; Mr. Justice Fitzgerald, President; Dr. J. G. Toombs, Secretary, Charlottetown, P. E. I.

The Western Association (Prince Co.) of Prince Edward Island (Summerside).

Nova Scotia.—*The Colchester Association for the Prevention of Tuberculosis.* Smith L. Walker, Secretary, Truro, N. S.

Quebec.—*The Montreal League for the Prevention of Tuberculosis.* Patrons, His Excellency, Earl Grey; Lord Strathcona and Mount Royal; President, Sir George A. Drummond; Secretary, Dr. E. S. Harding.

The Quebec League for the Prevention of Tuberculosis. President, Ed. Tumer; Secretary, Rev. Canon Scott, St. Matthew's Rectory, Quebec.

The District of St. Francis League for the Prevention of Tuberculosis, Secretary-Treasurer, Dr. E. J. Williams, Sherbrooke, Que.

Ontario.—*Toronto Free Hospital for Consumptives.* W. J. Gage, Chairman; H. C. Hammond, Treasurer; J. S. Robertson, Secretary, 347 King St. W., Toronto.

Hamilton Health Association. W. D. Long, President; W. J. Southam, Secretary-Treasurer, Hamilton, Ont.

The Ottawa Association for the Prevention of Tuberculosis. His Excellency Earl Grey, Hon. President; James Manuel, Esq., President; Walter Tucker, Secretary-Treasurer, Ottawa, Ont.

The Lanark County Association for Prevention of Tuberculosis. Dr. J. E. Klotz, Secretary, Lanark, Ont.

London Association for Prevention of Tuberculosis. Thirty-six local branches of the National Sanitarium Association.

Manitoba.—In this province, practically every incorporated city, town, and village is an association to find contributions for the provincial sanatorium and to help in other ways.

Saskatchewan.—Being a recently organized province, no organization has yet been attempted.

Alberta.—Five associations have been formed by the Canadian Association, for the special purpose of circulating literature.

British Columbia.—Every city and town has been organized, either by the secretary of the provincial board of health or the secretary of the Canadian Association, to secure support for the work of the provincial association.

A short summary of the work of these various associations must be given in order to present properly the active work done in Canada.

The Canadian Association for the Prevention of Consumption and Other Forms of Tuberculosis.—This was organized in March, 1901, at the instance and under the patronage of the Earl of Minto, then Governor-General. The objects of this Association are fully set forth in the constitution then adopted.

It is the central association of the Dominion and, with the exception of the National Sanitarium Association and the Toronto Free Hospital for Consumptives, all the associations throughout the Dominion are affiliated with it. The services of the secretary of the Association have been given through all parts of the Dominion in aiding local associations, lecturing, and disseminating literature. As far as possible the Association is always ready to assist any organization in furthering the antituberculosis campaign. Over 4,000,000 pages of literature have been distributed. At the suggestion of the Association, a chapter on the cause and prevention of consumption will be inserted in the forthcoming text-book on hygiene for use in the schools in most of the provinces. In an effort to arouse the Federal and provincial governments to action, forms of petition with accompanying letters have been sent to all county, city, and incorporated town municipalities throughout the Dominion, urging them to petition the provincial government of the several provinces within which they were situated to take action for the purpose of arresting the ravages of consumption in the several provinces, and also asking the provincial government to petition the Dominion government to take joint action with the provinces in order to formulate some practical form of mutual coöperation to this end.

As noted above, the secretary has delivered lectures (about 250) in the principal centers from Prince Edward Island to British Columbia.

The list of provincial and local associations appears elsewhere. In many smaller places when there does not seem room for active organization committees are at work distributing literature.

His Excellency, Earl Grey, Governor-General of Canada, is Honorary President. The Hon. Vice-Presidents are the Premier, Sir Wilfrid Laurier; Hon. Sydney Fisher, Minister of Agriculture; Lord Strathcona and Mount Royal; and the Lieutenant-Governors of the provinces. The executive council has ten members elected by the Association and ten appointed by His Excellency the Governor-General.

The Association meets annually to discuss the various phases of the tuberculosis problem in Canada and to deal with the report of affiliated organizations.

The National Sanitarium Association of Canada.—This Association, the first to be formed in Canada, was established in 1896, and began its work with the opening of the Muskoka Cottage Sanatorium at Gravenhurst, made possible by the gifts of Mr. W. J. Gage and the late Hart A. Massey, Esq., the town of Gravenhurst giving $10,000 to have the sanatorium located near it. In 1902 the Association opened the Muskoka Free Hospital for Consumptives.

These institutions represent a capital outlay of $140,000, and provide beds for 160 patients. Over 2500 patients have received treatment, the maintenance expenditure amounting to $400,000. Some of these patients have been maintained free of all cost for periods of twelve months.

The Association is endeavoring to do its share in checking the spread of this scourge through Canada. All contributions received are devoted to the maintenance of needy patients in the Muskoka Free Hospital for Consumptives, and to the general work of the Association. To further its work thirty-six branch associations have already been formed in the following towns and cities. One-half are contributing funds to maintain one or more beds in the Muskoka Free Hospital.

Branch Associations of the National Sanitarium Association.—The figures in parentheses indicate such associations as have raised the requisite amount of $300 a year to endow one or more beds:

Acton
Brantford (1)
Brussels
Belleville (1)
Brampton
Brockville
Berlin
Cobourg
Campbellford
Exeter
Guelph (2)
Georgetown
Goderich
Hamilton (12)*
Hanover
Ingersoll (1)
Kincardine
Lindsay (1)
London
Orangeville

* A pavilion with 12 beds has been set aside for Hamilton and Wentworth County for the past four years, maintained during that period by the Hamilton Branch Association.

Oshawa (1)
Ottawa (16)*
Owen Sound
Picton
Port Hope
Peterboro (1)
St. Mary's
Sarnia (1)
St. Thomas (1)
St. Catharines
Tillsonburg
Walkerville (1)
Wingham (1)
Woodstock (1)
Montreal (2)
Stratford (2)

The following municipalities have contributed $300 a year to endow a bed in the Muskoka Free Hospital for Consumptives for a period of twelve months. Allowing four months as the average of attendance, this gives accommodation for three patients from these municipalities each year.

Brant Co., Ont.
Brantford City, Ont.
Chatham, Ont.
Niagara Falls, Ont.
Perth Co., Ont.
Grey Co., Ont.
Simcoe Co., Ont.
Lambton Co., Ont.
St. Thomas, Ont.
Lincoln Co., Ont.
City of St. Catharines, Ont.
Oxford Co., Ont.

One hundred and two other municipalities have contributed amounts from $5 to $100 during the past year. In the year ending October 1, 1907, there were admitted to the Muskoka Free Hospital for Consumptives, on order of the municipality from the city of Toronto, 65 patients; the city of Ottawa, 33 patients.

Under statute enactment, any municipality may make an agreement with the Association whereby the institutions of the Association shall treat its patients, and the municipality may pass by-laws or issue debentures to raise money to assist this Association in its work.

Though the primary object of this Association has been "to establish and maintain institutions for the treatment of pulmonary diseases," educational work has been done directly and indirectly. In 1906 the Exhibition of the National Association for the Study and Prevention of Tuberculosis was brought to Toronto for one week, the expenses being met by this Association. The attendance during the week was 12,969.

The Association is under a Board of Trustees, who have power to add to their numbers from those who contribute $100 or more to the Association. Municipalities contributing may be represented on the board.

The Association keeps its institutions before the public through the press and a special publication, "The Door of Hope," in which contributions are

* Ottawa has contributed $4300, which has been accepted by the Association, to set aside two wards for eight patients each in the Muskoka Free Hospital for Consumptives. Ottawa not only has furnished this amount for the purpose named, but provides also for the maintenance of all patients sent under an agreement with the Association.

acknowledged and appeals made for funds to carry on the work of the Muskoka Free Hospital. The annual reports show very definitely the faith of the trustees in the power of printers' ink to assist in securing subscriptions.

The British Columbia Antituberculosis Society.—This Society has been very active since January, 1904, in a campaign of education through the province. Branch organizations have been formed in almost all centers, through which sufficient funds have been secured to open the Tranquille Sanatorium near Kamloops. A ranch of 600 acres has been purchased at a cost of $58,000. The soil is capable of producing almost any kind of crops in luxuriance, and ten acres are laid out in fruit. In connection with this farm there is a grazing ranch of 8000 acres. Under careful management a great proportion of the table supply for a very large institution can be produced. With suitable alteration the existing farm buildings have been utilized, and thirty beds are now occupied. Contracts have been let for a building to cost $65,000, or $100,000 furnished.

The Society will next build a hospital for advanced cases, and $22,000 has been set aside for this purpose. The provincial government has voted $50,000 to the work of the association and grants fifty cents per day per patient. Municipalities contribute $30 yearly per thousand population. Patients contribute if able.

The Society has received generous support everywhere in the province and gives promise of accomplishing splendid work.

The Manitoba Sanatorium for Consumptives.—A board of trustees has been incorporated by the legislature for the erection and maintenance of a sanatorium for the province. The municipalities have been given power to make contributions out of municipal funds for the support of this institution.

The province has voted $25,000 to the sanatorium, and a large sum has been contributed throughout the province. Plans have been prepared, but the trustees have as yet been unable to agree upon a site for the proposed buildings.

Local Associations.

British Columbia.—The local associations have been formed to assist in raising funds for the work of the provincial association. They are doing splendid work.

Ontario.—*Toronto Free Hospital for Consumptives.*—This association has been formed in Toronto to make provision for patients with far-advanced disease. It provides beds for the far-advanced poor of the city of Toronto, but such has been the success of the undertaking that kind friends have made it possible for this association to enlarge its scope, and it soon hopes to be able to accept the far-advanced cases not only of Toronto, but to pro-

vide a number of beds for patients from elsewhere in Ontario. The hospital of this association is situated in Weston, Ont., overlooking the Humber Valley. It is the first institution in Canada to care for those advanced in consumption. With a capital expenditure of $50,000, beds for over 60 patients have been provided. To September 30, 1907, 421 patients had been cared for.

In connection with this hospital there has been opened this year the King Edward Sanatorium (so named by special permission of His Majesty) for paying patients advanced in consumption. This hospital has 25 beds, and admissions are not restricted to residents of Toronto.

Hamilton Health Association.—This association was formed for the purpose of providing a local sanatorium for the early tuberculous cases of this city of Hamilton and county of Wentworth. A splendid site of 100 acres on the table-land overlooking the city was donated to the Association, and on this property has been erected a group of buildings comprising a well-equipped sanatorium of 35 beds. Initial cost of buildings and land, about $32,000. Some of the buildings and much of the furnishing has been secured through the earnest work of the Ladies' Auxiliary Board.

A visiting nurse visits far-advanced cases in their homes, and necessaries are provided.

The Ottawa Association for the Prevention of Tuberculosis, organized 1905, undertakes personal house-to-house visitation of the sick, individual instruction, and provision of necessaries in way of food and clothing, as well as tents and other appliances for outdoor living.

Literature has been distributed, anti-spitting signs placed on the streets and elsewhere, and an active campaign carried on to secure for the city a home for advanced cases. This has been successful; a site is chosen and work will begin at once.

The Association has made a critical study of the deaths from tuberculosis in the city during the past three years, and is moving along lines of improved sanitation in houses.

The Lanark County Association for Prevention of Tuberculosis.—This Association is endeavoring to secure a sanatorium for the county of Lanark and adjacent counties. It is well organized, and public meetings have been held.

QUEBEC.—*The Montreal League for the Prevention of Tuberculosis.*—This was organized in the year 1903. It is carrying on an excellent campaign of instruction and relief. Much literature has been distributed, not only to patients and their families, but in schools, factories, and other institutions. Lectures have been held on the subject in more than thirty Protestant churches and nearly all the Roman Catholic parishes in the city, as well as in several schools, workingmen's clubs, etc. Through the efforts of the

Legislation Committee of the League a by-law has been passed prohibiting spitting on the sidewalk.

All cases of tuberculosis reported to the League by physicians from hospitals or otherwise are visited more or less frequently, as occasion requires, by a qualified inspector, who distributes leaflets of advice, gives verbal instructions, supplies sanitary cuspidors, endeavors to provide better ventilation, and disinfects habitations after death or removal.

In the autumn of 1904 the League opened a dispensary especially for persons suffering from pulmonary tuberculosis, where physicians attend for some hours daily for consultation, and patients may be examined and receive advice and medicines. This branch of the work has grown steadily, is much appreciated, and promises satisfactory results. When thought advisable, patients are provided with nourishing food—eggs, milk, etc., also warm clothing. For those who require nursing at home, the coöperation of the Victorian Order of Nurses is enlisted. Cases in an advanced stage of the disease who have no friends in the city are sent to an institution. The great need in this branch of the work is a sanatorium in a healthy situation for incipient cases. The work is supported by subscriptions from the public, aided by a municipal grant.

In the three years of its existence the League has dealt with about 1300 cases of tuberculosis, some of whom have received continuous care and assistance for many months.

At the last session of the provincial legislature the League asked that legislation similar to "the Ontario Act respecting Municipal Sanatoriums" be enacted. This would doubtless have received sanction but for the act passed at the same session providing for the appointment of a Royal Commission in Tuberculosis for the Province.

District of St. Francis League for the Prevention of Tuberculosis.—This was organized in 1903 and is carrying on a campaign of education. Local societies or subcommittees are formed in each town or municipality of the district about Sherbrooke. The League arranges for examinations of all sputum submitted and looks after all indigent patients.

Quebec League for Prevention of Tuberculosis.—This League has received a grant of land on Lake Edward. (See under head of "Proposed Sanatoriums.")

Nova Scotia.—*The Colchester County Association for Prevention of Tuberculosis.*—This is an association doing work in a comparatively small community. Its work is principally educative. Much literature has been distributed. A series of lectures are given to the pupil teachers of the provincial normal school. The municipal council contributes to the fund of the Association.

Prince Edward Island.—*The Western Association of Prince Edward*

Island for the Prevention of Tuberculosis.—This Association has been active in giving a series of lectures through the western part of the province, distribution of pamphlets and cards, timely articles in the provincial press, addressing teachers' associations, endeavoring to secure preventive legislation, caring for patients by instruction, supplies, and food when necessary.

The Provincial Association, Charlottetown, P. E. I.—This Association has been looking into the subject of school sanitation, caring for patients through a district nurse, and endeavoring to secure notification of all cases in order to insure that the patient is instructed in sanitary living and to secure proper disinfection after death or removal.

List of Special Hospitals and Sanatoriums in Canada.

Ontario.—*Muskoka Cottage Sanatorium,* Gravenhurst. Eighty-five beds; $12 to $18 weekly. For incipient cases.

Muskoka Free Hospital for Consumptives, Gravenhurst. Fifty to 70 beds. Free, or patient pays in part if able. Dr. W. B. Kendall, Physician-in-charge; Dr. C. D. Parfitt, Resident Consultant to both institutions.

The Mountain Sanatorium, Hamilton. For incipient cases. Thirty-five beds. For Hamilton and Wentworth County. Dr. J. H. Holbrook, Physician-in-charge.

Toronto Free Hospital for Consumptives, Weston. For advanced and far-advanced cases from city of Toronto. Free, or patient pays in part if able.

King Edward Sanatorium for Consumptives, Weston. A hospital for advanced cases. Twenty-five beds; $15 weekly; semi-private wards, $8.00. Dr. W. J. Dobbie, Physician-in-charge to both institutions.

Tents and other appliances for treatment of tuberculosis are in use in Galt, Stratford, Peterboro', Ottawa, St. Catharines, Kingston, London. Some are in connection with the local general hospital (Kingston); others are provided by the municipality (Galt); others by local charitable associations (Ottawa, Stratford, St. Catharines) or by private philanthropy (London).

Quebec.—*L'Hopital des Incurables,* Montreal, has 20 beds for consumptives.

The Grace Dart Home, Montreal, for advanced cases; 20 beds. Recently organized by private subscription.

Brehmer Rest, Ste. Agathe des Monts. Patroness, Her Excellency, Countess Grey; President, Mrs. F. H. Waycott; Secretary, Mrs. Geo. Chillas. For patients not definitely tuberculous. Patients pay $4.00 weekly if able. Dr. A. J. Richer, Physician-in-charge.

Nova Scotia.—*Provincial Sanatorium,* Kentville. Twenty-five beds for residents of the province. Patients pay $5.00 weekly. Dr. W. S. Woodworth.

Wolfville Highlands Sanatorium. Ten beds; private. Dr. G. E. DeWitt, Wolfville.

ALBERTA.—*Calgary Sanatorium*, Calgary. Sixteen beds; private.

BRITISH COLUMBIA.—*Tranquille Sanatorium*, Kamloops, for incipient cases. Thirty beds. Free; patients pay in part, if able. Admissions at present limited to residents of British Columbia, Dr. R. W. Irving, superintendent.

DISPENSARIES.

1. *Dispensary of the Montreal League* for the Prevention of Tuberculosis, 691 Dorchester Street. Opened November, 1904. Open six days weekly. When too ill to attend, patients are visited in their houses. Patients are supplied with all the necessaries in the way of food and clothing. The report for 1907 (covering fifteen months) gives this résumé of work: New cases reported, 300; number receiving food or clothing, 80; eggs distributed, 3600; quarts of milk, 2640; clothing, blankets, etc., 500; patients on visiting list, 132; new patients during year, 368; dispensary consultations, 2420; disbursements, $3,628.93.

2. *Tuberculosis Dispensary and Clinic, Toronto General Hospital.* Opened January, 1906. Visiting nurse visits all homes and reports surroundings and conditions. Patient given sputum flask, etc., with instructions. Food and clothing supplied when needed. Special wards available if necessary to bring patients into hospital. Houses reported to Board of Health for fumigation. When possible, patients sent to sanatorium at Weston or Gravenhurst. Dispensary open one day each week. The visiting nurse is paid for by city health department. Visits by nurse, 1807; houses disinfected, 46; quarts milk, 1558; eggs (dozen), 406; new patients, 140; dispensary consultations, 404.

3. *Tuberculosis Dispensary of Hamilton City Hospital.* Opened 1906. The physician of the Mountain Sanatorium attends weekly to examine patients for admission to sanatorium. Those too advanced are visited in their homes by the visiting nurse.

4. *The May Court Club Tuberculosis Dispensary*, Ottawa, Ont., opened June, 1908. Food and clothing, medicine, and other necessaries are provided for use by the visiting nurse of the Ottawa Association for Prevention of Tuberculosis.

PROTECTED SANATORIUMS AND HOSPITALS.

QUEBEC.—*Lake Edward Sanatorium* of Quebec League for Prevention of Tuberculosis. The Province of Quebec granted in June, 1905, 137 acres for sanatorium purposes, on Lake Edward, 1200 feet above sea-level. Work has begun, and it is hoped that in another year it will be ready for occupation. Rev. Canon Scott reports $35,000 subscribed.

Camp of Montreal League for Prevention of Tuberculosis. There is an earnest endeavor to secure this, but the committee are unable to secure a site.

ONTARIO.—*Ottawa.* A Relief Home for advanced cases will be built at once by the Ottawa Association for Prevention of Tuberculosis. The site is the gift of Mrs. Pugsley, and the plans are ready.

Hamilton. A prominent citizen has given sufficient funds to build a hospital for advanced cases. This will be erected as soon as possible.

London and Middlesex County. A municipal sanatorium was projected, but the movement is temporarily blocked.

MANITOBA.—For the *Manitoba Sanatorium* over $75,000 has been subscribed and building operations will begin when site is decided upon.

THE FACTORS IN FUTURE WORK.

The summary here presented of antituberculosis measures in Canada would indicate that in the past twelve years much has been accomplished. Yet we must deplore the difficulties which so far have prevented our Federal and most of our provincial governments taking action in the matter. Our municipalities are gradually awakening to the need of preventive measures, and each year sees new measures enforced.

The work of prevention requires the coöperation of all the forces available. We must first deal with those suffering with the disease, for inasmuch as the disease is spread only from those having an open tuberculosis, we must concede (leaving out of discussion here the communicability to man of bovine tuberculosis) that the disease would soon all but disappear could all who have an open tuberculosis be placed under proper discipline, and all sputa and other bacilli-bearing discharges be destroyed. Here the responsibility to a great extent rests upon the physician. He must be careful and proficient in diagnosis, and when open tuberculosis is present, inform the patient, so that proper precaution may be observed. Personal instruction must be given.

Special hospitals for detention are necessary, and should be provided for such people as are wilfully unclean and whose habits are such that they are spreading disease about wherever they may be.

Sanatoriums are a necessity for the care of those who cannot be kept under close supervision at home, or whose surroundings are not conducive to recovery, whether this be from unsanitary conditions, the presence of meddlesome relatives and friends, or the thousand and one petty things which prevent a patient following the necessary outdoor life and observing the prescribed rest or exercise. Separate provision should be made for incipient and far-advanced cases.

In cities and the larger towns where poverty is ever present, special dispensaries can do much for those who must continue at work. The dispen-

sary physician and visiting nurse in these cities can play an important part in the warfare against the disease—watchful for unsanitary conditions, ordering disinfection, examining the families of patients, ever watchful for new infections, instructing patient and family in hygienic living.

Notification of all cases of tuberculosis is necessarily a part of efficient work in the crusade, and where there is a live, earnest board of health, which will coöperate with the physicians, no time should be lost in enforcing compulsory notification.

Local associations can do much in assisting the authorities. They can carry on an educational campaign, disseminate knowledge concerning the methods to be adopted for the prevention of tuberculosis, assist in movements for the erection and maintenance of sanatoriums, special hospitals, dispensaries, etc.

Our citizens in general, and especially our school children, must be instructed in the laws of hygiene and health.

We must not forget that every measure that makes for a higher standard of living is of value in the campaign against tuberculosis. In our houses we should avoid dust-gathering and light-excluding hangings, provide proper ventilation, and guard against catarrhal diseases. Our municipal authorities should see that our cities and towns are rendered as sanitary as possible. Keep our streets clean; do away with the smoke nuisance; inspect our schools, workshops, and factories; institute careful medical inspection of school children and of workmen in factories, especially those whose occupation predisposes to tuberculosis; guard our milk-supply, and, through notification, institute careful supervision over all "open" cases, where this is not already being done.

Our provincial governments are awakening to the necessity of doing something to lessen the yearly mortality, and we trust with the aid of the Federal government, we shall soon see an active interest taken in formulating measures to overcome this preventable disease, which is responsible each year for 13,500 deaths in the Dominion.

LA LUTTE CONTRE LA TUBERCULOSE EN HONGRIE.

Par M. le Dr. C. Chyzer,
Chef de l'Hygiène et de l'Assistance Publique au Ministère R. H. de l'Intérieur.

La Hongrie réunit, sur un territoire relativement restreint, toutes les particularités qu'on ne rencontre ailleurs que dans des pays très vastes et qui sont alors séparés par de grandes distances. Les sommets de la Haute-Tátra et des Alpes de la Transylvanie sont presque toujours couverts de neiges, une maigre végétation de genévriers s'attache à leurs flancs; des forêts séculaires de hêtres et de chênes ombragent les croupes des montagnes moyennes; le terreau humide de la petite plaine hongroise est sillonné par des milliers de cours d'eau, tandis que dans la grande plaine, il arrive qu'on ne rencontre pas une seule source pendant toute une journée de marche; dans la "Hanság", des lieues et des lieues sont couvertes de marécages remplis de roseaux, tandis que le simoun de Serbie, le brûlant "cossovo", forme de véritables collines en soulevant les sables mouvants du désert de Deliblat.

Dans ces contrées de configuration géographique si différente, les populations sont également très hétérogènes. Or, soit que l'on envisage la Hongrie au point de vue de la configuration géographique, soit à celui de l'ethnographie, on constate que la tuberculose est répandue partout, dans toutes les régions, qu'elle atteint toutes les populations et, chose bizarre, chaque configuration géographique a une partie de sa région plus contaminée que les autres. Trois régions de la Hongrie sont plus spécialement infestées et ravagées d'une manière permanente; la première est la partie montagneuse du Nord, comprenant les comitats (départements) de Liptó, Zólyom et Turócz, et habitée par des Slovaques; la deuxième, les environs du lac "Fertö", surtout dans les centres allemands du comitat de Moson; la troisième enfin, les rives de la Tisza et du Maros dans la grande plaine, parmi la population magyare et serbe.

Sur ces trois territoires, la mortalité annuelle causée par la tuberculose dépasse 40 pour 10,000 habitants.

Si nous examinons l'extension de la tuberculose uniquement au point de vue de la race, nous constatons qu'il y a, dans chaque région, des territoires plus atteints que d'autres qui sont relativement favorisés.

Ainsi la tuberculose est fort répandue parmi les Slovaques de la Hongrie

occidentale, tandis que les cas sont peu nombreux à l'Est, chez les Slovaques du comitat de Sáros. Chez les premiers, la mortalité causée par la tuberculose est de 42 à 45 pour 10,000 habitants, tandis que chez les derniers elle est de 27 à 29. Un phénomène singulier reste encore à signaler: la phtisie est beaucoup plus répandue parmi les Magyars vivant disséminés dans les villages que parmi ceux qui résident dans les villes. Ainsi dans les comitats de Békés, Csongrád, Csanád, la mortalité par la tuberculose est de 42 à 45 pour 10,000 habitants, tandis que dans les grandes villes entièrement magyares de Szeged et de Hódmezövásárhely, dans le comitat de Csongrád, bien que la première compte plus de 100,000 âmes, la mortalité reste constamment au dessous de 30, ordinairement à 27 ou à 28. La proportion est aussi relativement favorable à Györ, Komárom, Székesfehérvár et dans d'autres villes magyares. Les conditions les plus défavorables se rencontrent à Fiume et à Szabadka, où la proportion dépasse 60 pour 10,000: la mortalité due à la tuberculose y atteint donc le double de celle dans les villes magyares sus-indiquées.

Cette circonstance prouve clairement que ce sont uniquement les conditions locales qui, en favorisant la propagation des germes infectieux et la disposition morbide, sont, en même temps, les causes de l'extension de la tuberculose. Ces facteurs sont extrêmement variés: selon les localités, c'est tantôt l'un, tantôt l'autre qui devient la cause déterminante de la propagation.

La lutte organisée contre la tuberculose a commencé en Hongrie en 1898; il avait bien été pris auparavant quelques vagues mesures à ce sujet, mais l'organisation proprement dite ne date que de cette année-là. Le point de départ et le signal de la lutte fut le beau discours prononcé à la Chambre des Magnats en 1896, année du millénaire, par le Dr Frédéric Korányi, dans lequel l'illustre professeur de l'Université de Budapest appelait l'attention sur les ravages de la tuberculose en Hongrie et demandait qu'on engageât une vigoureuse action sociale contre ce fléau.

Ce discours eut pour premier effet d'éveiller l'attention de notre société, mais son effet le plus durable fut l'initiative qu'il provoqua de la part du Ministère de l'Intérieur.

Celui-ci appréciant à sa juste valeur l'idée émise d'entamer la lutte dans toute l'étendue du pays, s'empressa de prendre sa part de l'organisation et invita le Conseil d'hygiène à élaborer un avant-projet sur cette question. Ce travail fut achevé en 1897 et servit de base au plan d'organisation officiel de la lutte contre la tuberculose, rédigé par la section sanitaire du Ministère de l'Intérieur. Le Ministre ne se borna pas à en effectuer la réalisation dans le ressort de son Département, mais il invita tous ses collègues du Gouvernement à faire exécuter les mesures proposées dans tous les offices, bureaux ou institutions de leur ressort. En Hongrie, les municipes ont le droit de rendre

obligatoires dans toute l'étendue de leur territoirre, par voie de statuts, certaines mesures d'ordre administratif. En conséquence, le Ministre de l'Intérieur, par la circulaire n° 49851 de 1897, dans laquelle il faisait connaître les principes directeurs de la lutte contre la tuberculose, invita tous les municipes à établir, en tenant compte des circonstances locales, un règlement relatif à cet objet. La circulaire recommandait d'une façon générale l'application des mesures suivantes:

Dissiper avant tout le préjugé que la phtisie est incurable, puis répandre des notions justes sur la nature de la maladie.

Le Ministre de l'Intérieur appelait spécialement l'attention des municipes sur la nécessité d'améliorer les conditions de salubrité des logements et, en particulier, de ceux des ouvriers agricoles, alors encore très négligés.

Une amélioration sensible s'est produite dans ce domaine au cours de ces dix dernières années: plusieurs municipes ont élaboré non seulement un règlement relatif aux logements des ouvriers agricoles, mais ils l'ont fait exécuter dans la plus grande partie de leur territoire; ainsi à Békés, à Szabolcs des maisons propres et salubres ont remplacé les vieilles masures où vivait entassée toute une population d'ouvriers agricoles. La question des cités ouvrières a fait de grands progrès, et beaucoup de fabriques ont construit des habitations irréprochables.* Les exploitations et les domaines de l'État ont toujours donné le bon exemple à cet égard, et la prévoyance du Gouvernement s'est manifestée surtout par l'article XLVI. de la loi de 1907 qui accorde des subventions, prêts ou garanties, destinés à faciliter la construction de maisons pour les ouvriers agricoles.

La circulaire susmentionnée invitait ensuite les autorités à faire leur possible pour améliorer l'alimentation de la population, pour déraciner les habitudes nuisibles et pour parer aux dangers que causent tant les animaux atteints de phtisie que leurs produits, en particulier le lait contenant des germes de tuberculose.

En même temps la circulaire ministérielle recommandait énergiquement aux autorités de veiller au développement de la propreté en général.

En dehors de ces dispositions d'intérêt hygiénique, les autorités recevaient des instructions leur prescrivant de prendre des mesures pour que dans les bureaux, dans les écoles et dans tous les locaux ouverts au public, il soit placé des écriteaux interdisant de cracher sur le plancher, qu'on y installât des crachoirs contenant de l'eau ou un liquide antiseptique, et que, le nottoyage des parquets se fasse avec des torchons humides.

En vue d'éviter la contamination directe, tous les hôpitaux recurent l'ordre d'isoler les phtisiques et de désinfecter soigneusement leurs expectorations.

*Récemment, le Parlement Hongrois a voté une loi décrétant la construction de 10,000 maisons ouvrières à Budapest.

Le Ministre de l'Intérieur, fit écrire, en même temps que la circulaire, une brochure populaire qui fut traduite dans toutes les langues parlées en Hongrie et distribuée à des centaines de milliers d'exemplaires.* La distribution fut renouvelée pendant plusieurs années de suite, la dernière eut lieu en 1907. Le Gouvernement crut alors le moment venu de faire répandre dans le public un traité plus détaillé: il ouvrit un concours pour la rédaction d'une brochure populaire, dans laquelle il fût tenu compte des nouvelles conquêtes de la science. L'ouvrage trouvé le meilleur par le Conseil d'hygiène public fut imprimé et largement distribué.

Afin d'éclairer la population, on fit placarder de nombreuses affiches instructives, et le Gouvernement invita les autorités à faire donner des conférences par des spécialistes. Le Ministre de l'Intérieur pria aussi ses collègues du cabinet de se joindre à lui, ce qu'ils firent avec empressement, et bientôt de nombreuses mesures furent prises dans le but de préserver de la contagion le public aussi bien que les employés.

L'énumération de toutes ces mesures sort du cadre de cet article, je me bornerai à indiquer qu'elles sont en harmonie avec les principes directeurs énoncés plus haut.

Nous devons aussi mentionner que la révision des statuts faite par les municipes sur l'invitation du ministère, a donné, d'une manière inattendue, beaucoup à faire au Gouvernement, car, dans leur zèle, la plupart des municipalités dépassèrent le but et ne craignirent pas d'édicter des dispositions qui lésaient profondément et même limitaient illégalement la liberté individuelle. Avec le temps, ces difficultés finirent cependant par s'aplanir, et, depuis lors, l'œuvre gouvernementale et municipale de la lutte contre la tuberculose est en progrès lent, mais continu.

Parallèlement à cette œuvre, celle de l'action sociale gagnait aussi du terrain et, ce qui est curieux, elle manifesta, tout au début, la tendance d'anticiper sur la marche naturelle des choses. Alors qu'avant 1898 on n'avait encore presque rien fait dans la lutte contre la tuberculose, pas même les premiers pas en vue de répandre les connaissances élémentaires, voilà que le public réclamait déjà l'établissement de vastes sanatoria, qui sont, pour ainsi dire, le parachèvement de cette action.

Les causes de cet engouement sont faciles à expliquer. D'une part, le bruit fait par l'établissement des sanatoria en Allemagne parvint bien vite jusqu'à nous, et dans son beau zèle, sans rechercher les causes profondes de la diminution de la tuberculose en Allemagne, le public voyait dans les sanatoria un remède infaillible contre le mal; c'est pourquoi on mit chez nous une hâte fébrile à en fonder. Par malheur, le temps qui s'est écoulé depuis, a fortement réduit les espérances exagérées qu'avait fait naître le fonctionne-

* Elle parut, en même temps, en français, dans la *Revue de a Tuberculose* susmentionnée.

ment de ces établissements. Une autre raison pour laquelle on désirait des sanatoria, c'était un sentiment d'humanité mélangé d'espoir qui voulait assurer aux infortunés malades un asile avec la guérison; enfin on pensait que la vue de quelques malades guéris serait bien plus efficace pour encourager la société à lutter contre la tuberculose que les mesures d'hygiène et de prophylaxie prises par les autorités et qui avaient sans doute une grande portée, mais qui ne pouvaient montrer des résultats immédiats. Il était nécessaire de mentionner ces choses, car elles expliquent pourquoi, jusqu'à ces dernières années, à part l'action officielle des autorités, tous les efforts sociaux sur le terrain de la lutte contre la phtisie ont tendu à réclamer la fondation de sanatoria et ne se sont guère manifestés dans une autre direction.

La Société du Sanatorium pour tuberculeux indigents à Budapest, fondée en 1897, fut la première association qui, après cinq années de collectes et avec l'assistance libérale de l'État, ouvrit en 1902 le premier sanatorium hongrois, le sanatorium d'Elisabeth, au milieu de la magnifique forêt de Budakesz, près de Budapest. Cette Société se trouve sous la présidence de M. le comte Louis Batthyány, Conseiller intime de S. M. qui prend une part si active à la lutte contre la tuberculose. Quelques années plus tard se constitua, sous la présidence de M. George de Lukács, ancien Ministre des Cultes et de l'Instruction publique, la deuxième grande association, la Société du Sanatorium prince royal Joseph, qui fit construire à Gyula, en 1907, le sanatorium destiné à l'Alföld (la grande plaine hongroise). Le troisième grand sanatorium est dû au Ministre des Finances qui a fait construire aux frais de l'État, dans la montagne d'Algyógy, en Transylvanie, un sanatorium de 100 lits pour les ouvriers tuberculeux des usines de fer de l'État.

Le tout premier sanatorium pour tuberculeux fut, à vrai dire, un petit établissement ouvert en 1897, à Szent-Endre, avec 15 lits. C'est plutôt un lieu de repos où les ouvriers phtisiques encore au début de leur maladie viennent reprendre des forces, grâce à l'air pur et à une bonne alimentation, après quoi ils retournent fortifiés à leur atelier.

Outre les deux grandes sociétés dont nous venons de parler, il s'est formé, dans les provinces, plusieurs petites associations qui, n'ayant pu se procurer les fonds nécessaires à la construction de sanatoria, se sont mises d'une autre manière au service de la lutte contre la phtisie. Celle qui s'est le plus rapprochée du but qu'elle se proposait, est l'association de Nagy-Szeben qui compte ouvrir bientôt sur le mont Sánta, à l'aide d'une subvention de 12,000 couronnes faite par l'État, une maison de repos et de récréation pour étudiants faibles de la poitrine.

Ces derniers temps, l'engouement pour les sanatoria est singulièrement tombé, l'expérience ayant démontré qu'avec la meilleure volonté ni l'État, ni la société ne sont à même de fournir les sommes énormes qu'exigent la

fondation et surtout l'entretien de pareils établissements. D'autres circonstances ont contribué à refroidir l'enthousiasme; on observe en particulier que les phtisiques qui doivent soutenir leur famille, ne vont pas dans les sanatoria lorsque leur mal n'en est encore qu'à son début, car ils n'ont personne pour subvenir à l'entretien des leurs pendant le long séjour qu'ils doivent y faire; d'autre part, les résultats obtenus dans les sanatoria avec les malades avancés ne sont, comme il fallait du reste s'y attendre, nullement en rapport avec les dépenses considérables qu'ils occasionnent.

Peu à peu on s'est rendu compte de ce qu'en Allemagne ce sont principalement des sociétés ouvrières d'assistance et d'assurance dont la fortune s'accroît annuellement de plus de 100,000,000 de marks qui pourvoient aux frais énormes des sanatoria, auxquels nos institutions similaires, qui sont plutôt en déficit, ne peuvent même pas être comparées. L'attention publique s'est donc tournée vers la lutte contre la tuberculose telle qu'elle a été engagée dans les pays où les circonstances ne permettent pas l'établissement en masse de sanatoria et qui peuvent cependant donner des résultats satisfaisants, et, en particulier, vers les dispensaires d'origine française ou belge.

Telle Était la situation lorsque le Ministère de l'Intérieur fut confié à M. le comte Jules Andrássy. Celui-ci se rendant compte de l'importance capitale aux points de vue social, économique et hygiénique de la lutte contre la tuberculose, il a résolu de prendre énergiquement en main la direction du mouvement.

A cet effet, une conférence avait été convoquée sous sa présidence effective; elle avait pour objet d'établir, dans ses grandes lignes, la direction de l'action projetée, après avoir examiné dans leur ensemble toutes les formes que la lutte a prises jusqu'à nos jours. A cette conférence furent invités les fonctionnaires compétents des ministères, les représentants de la Faculté de Médecine et plusieurs spécialistes en ces matières.

Comme il est fort difficile d'éveiller dans notre pays l'intérêt public pour ces sortes de choses, et plus encore d'amener la société à faire des sacrifices, et que par suite les charges de la propagande retombent en majeure partie sur l'État, la conférence s'est surtout occupée des procédés qui pourraient être employés dans le ressort de l'Administration du pays.

Ayant constaté que, par suite de l'état de fortune de notre société, il n'y avait pas grand'chose à attendre d'elle, M. le comte Jules Andrássy a eu soin d'inscrire au budget du Ministère de l'Intérieur un crédit *ad hoc*, afin d'appuyer financièrement les essais dignes d'être encouragés. Il a pris donc dans ce but 100,000 couronnes dans le budget de 1906, 200,000 dans celui de 1907, 500,000 dans celui de 1908, et il s'est procuré ainsi les moyens, non-seulement pour aider les anciennes institutions, mais encore pour en créer de nouvelles.

Parmi ces dernières, celles qui sont le plus en faveur sont les dispensaires; ils paraissent même, dans les conditions où nous nous trouvons, des établisse-

ments désirables, efficaces et l'État les subventionne d'autant plus volontiers que ce sont avant tout de précieux instruments de prophylaxie et, par conséquent, des auxiliaires pour l'accomplissement de sa tâche.

On est en droit de fonder les plus belles espérances sur le fonctionnement judicieux des dispensaires en ce qui concerne le sauvetage des membres bien portants des familles qui comptent des malades et surtout des enfants.

Afin de servir et d'encourager la cause des dispensaires par un exemple à suivre, M. le comte Andrássy a fondé à Budapest, entièrement aux frais de son budget, le premier établissement de ce genre. Une maison dans le VIII[e] arrondissement, habité par une nombreuse population ouvrière, fut achetée, aménagée dans ce but, et devint le dispensaire central. Cet établissement a coûté 80,000 couronnes, et, pour en assurer le fonctionnement, on a donné une subvention annuelle de 40,000 couronnes à la Société du Sanatorium pour tuberculeux indigents de Budapest, à laquelle l'administration du dispensaire avait été confiée. Celui-ci aurait été le premier en Hongrie, mais pendant la durée des travaux nécessités par la tranformation du bâtiment, les zélés promoteurs de l'Association pour la lutte contre la tuberculose du département de Vas, ouvrirent à Szombathely, en 1907, le premier dispensaire hongrois.

En moins d'une année, la cause de ces établissements a fait d'immenses progrès, et quoique nous ne soyons encore qu'au milieu de l'année 1908, il y en a déjà 6 ouverts: 2 à Budapest, un à Szombathely, à Nagyvárad, à Szeged et à Hódmezövásárhely. Les dispensaires de Szabadka, Székesfehérvár et Magyar-Óvár, dont l'établissement est en cours, commenceront à fonctionner dans le courant de cette année. L'État contribue par une somme plus ou moins considérable à l'entretien de tous ces établissements.

Cependant la vigilance de l'État s'étend aussi sur l'entretien des tuberculeux et les soins médicaux qu'ils nécessitent. Outre la subvention élevée qu'il accorde aux deux grands sanatoria susmentionnés, le Ministre a encouragé l'établissement d'institutions similaires; ainsi il a fourni à la Societé de la Croix Blanche de Szombathely, par un don de 45,000 couronnes, les moyens de construire un pavillon isolé avec 25 lits pour enfants tuberculeux, comme annexe à son nouvel hôpital des enfants, et à l'Association des Dames de Turócz, il a donné 50,000 couronnes pour la construction d'un pavillon affecté aux tuberculeux de l'hôpital public de Turócz-Szent-Márton. L'hôpital de Nagymihály a aussi reçu pour la construction d'un pavillon pour tuberculeux 60,000 couronnes (payables en deux années).

On achèvera sous peu dans les environs de Budapest et aux frais de l'Etat, un sanatorium de convalescence pour les enfants tuberculeux de Budapest qui ont subi une opération dans l'Asile des enfants assistés, afin d'assurer et de hâter leur guérison dans un milieu plus favorable. Cependant il faut faire remarquer que la Ligue pour la protection de l'enfance, qui se

trouve sous la présidence de M. le comte Léopold Edelsheim-Gyulay,* sollicite des sanatoria pour les enfants tuberculeux et scrofuleux dans plusieurs régions du pays.

Il faut aussi mentionner parmi les mesures qui ont été prises en vue de faciliter la constatation de la tuberculose, l'installation, à l'Institut d'hygiène et de bactériologie du Ministère de l'Intérieur, d'une station d'analyse microscopique gratuite où les médecins peuvent envoyer les expectorations suspectes de leurs malades.

En vue de la destruction des germes infectieux, les municipalités ont été invitées à rendre obligatoire la désinfection des appartements après la mort ou le déménagement d'une personne atteinte d'une maladie du larynx ou de la tuberculose.

L'action de plus en plus active du Gouvernement a trouvé un écho dans le public et nous pouvons constater avec satisfaction que dans le court espace de temps qui s'est écoulé depuis que M. le comte Andrássy est entré au Ministère de l'Intérieur, un grand nombre d'associations, dont quelques-unes très importantes, se sont fondées dans toute l'étendue du royaume, telles que les ligues pour la lutte contre la tuberculose du Trans-Danube, de la Hongrie méridionale, et parmi les plus grandes, les associations des départements de Vas, Trencsén, et des villes de Pécs, Nagyvárad, Kolozsvár, Szabadka, etc.

* Voir son intéressant article sur la Protection de l'enfance en Hongrie dans la livraison du 15 mai 1908 de le Revue de Hongrie (No. 3 tome 1, p. 332–344).

DIE GETROFFENEN UND NOCH ERWÜNSCHTEN AMTLICHEN MASSREGELN GEGEN DIE TUBERKULOSE IN DER KÖNIGL. FREISTADT KOLOZSVAR (OSTUNGARN).

Vom städt. Oberphysicus Dr. Johannes Bartha,
Kolozsvar.

Befassen wir uns mit den Ursachen dieser verheerenden Krankheit und zwar die im allgemeinen teils schon anerkannt sind und mit denen, die der Annahme am nächsten liegen.

In erster Reihe setzen wir eine gewisse individuelle Veranlagung voraus, welche abstammen kann—

1. Durch erbliche Belastung.

2. Von allgemeiner Körperschwäche, entstehend in Folge anstrengender Arbeitsleistung bei mangelhafter oder minder nahrhafter Verpflegung oder in Folge lange andauernder Krankheit.

3. Zufolge Aufenthaltes in engen, feuchten, schimmeligen Wohnungen (mit einem Worte in Folge von Armut); hiezu gesellt sich noch die irre Auffassung, dass der Genuss von Alkohol die ungenügende Nahrung ersetzt und Kraft bietet zur schweren Arbeit, in Folge dessen übermässiger Alkoholgenuss.

4. In Folge tuberkulöser Infektion, vermittelt durch die Atmungs- und Verdauungsorgane.

Betrachten wir nun die, seitens unserer Stadtbehörde zum Zwecke der Beseitigung dieser Ursachen getroffenen Massregeln, welche geeignet waren, auf die Verminderung der Krankheit Einfluss zu üben.

1. *Zur Verhinderung der erblichen Belastung* konnte die Behörde nichts beitragen, nachdem es nicht in ihrer Macht steht, Eheschliessungen der Belasteten zu verhindern. Diesbezüglich wäre nur im Wege eines Landes- oder Internationalgesetzes und Uebereinkommens etwas zu erreichen.

Es verlautbarte nämlich schon vielseits die Meinungsäusserung, dass solche Eheschliessungen entweder auf gesetzlichem oder auf sozialem Wege unmöglich oder wenigstens erschwerend gemacht werden, und zwar möge die Eheschliessung solcher Belasteter entweder gänzlich verboten werden oder nur mit der Bedingung gestattet werden, dass solche nur mittelst ärztlicher

Zeugnisse bestätigen, dass sie nicht erblich belastet sind, ja sogar, dass sie auch in Hinkunft keiner erblichen Belastung unterworfen sind.

Auf sozialem Wege wäre wohl etwas zu erreichen, dass Einfluss bewirkt wird auf die Belasteten, dass sie sich der Eheschliessung enthalten; welche Garantieen hätten wir jedoch dafür, dass diese Verfügungen durch ausser-eheliche Vermehrungen nicht illusorisch würden?

Und welcher Physikus würde sich getrauen, wenn jedwelcher Nachkomme belasteter Eltern, der im 25–30sten Lebensjahre in die Ehe treten wollte, es ärztlich zu bezeugen, dass derselbe—in Folge erblicher Belastung—von der verheerenden Krankheit gänzlich befreit sei, wenn auch während der Untersuchung wirklich keine Spur von Tuberkulose konstatierbar wäre. Begegnen wir ja täglich Fällen von Individuen, die bis zum 25–30sten Lebensjahre vollkommen gesund sind, von Bronchial-Katarrh behaftet werden, um den sich zu kümmern sie es anfangs nicht einmal der Mühe wert halten und binnen 1–2 Jahren an Tuberkulose umkommen.

Und was würde mit einem Physikus geschehen, der ein solches angeblich falsches Zeugnis oberwähnten Inhaltes ausstellt?

Nehmen wir an, der Arzt konstatiert bei der Untersuchung verdächtige Symptome: kann er es mit seinem Berufe im Einklange dadurch dass er dem Betreffenden die Art seiner Krankheit mitteilt, dessen Seelenruhe zu Grunde zu richten? Oder wird er, um dies zu vermeiden, wirklich ein falsches Zeugnis ausstellen?

2. *Zur Milderung der Armut* haben wir zwar ein Gesetz, das die Blutsverwandten und die Gemeinden zur Versorgung ihrer angehörigen Armen verpflichtet; ausserdem geschieht diesbezüglich vieles auf sozialem Wege.

Solche Arme sind jedoch ohne Ausnahme alle arbeitsunfähig und—gesetzt den Fall, sie würden Arbeit finden—nicht im Stande, ihr Brod auch nur im geringsten Masse zu verdienen.

In neuerer Zeit sind besonders für gewerbetreibende Arbeiter Krankenversorgungsvereine unter verschiedenen Titeln entstanden, sozusagen gegen einen geringen Mitgliedsbeitrag, ausser einem geringen Unterstützungsbeitrag in barem Gelde auch ärztliche Hilfe und die nötigen Arzneien.

Dies mag auch mit eine der Ursachen sein davon, dass im letzten Dezennium Besserung wahrzunehmen ist. Ich bin der Meinung, dass in Folge des Arbeiterversicherungs-Gesetzes in Zukunft sich die Besserung fördern wird.

Diese Förderung wäre erfolgreicher, wenn neben der Verabreichung ärztlicher Hilfe und der Arzneien der Unterstützungsbeitrag nicht sistiert würde.

Viele der gewerbetreibenden Hilfsarbeiter, in der Bestrebung, sich selbständig zu machen, verlassen die Werkstätte ihrer Brodgeber und richten sich selbständig ein. In der Hoffnung, genügend Arbeit zu finden, um sich einen eigenen Herd zu gründen, treten sie in die Ehe und bestreben sich,

eine den sanitären Anforderungen entsprechende, wenn auch teurere Wohnung zu mieten.

Solche Hoffnungen gehen selten in Erfüllung; in den meisten Fällen vermindert sich die Arbeit, während die Zahl der Familienmitglieder sich vermehrt; über kurz oder lang tritt Not ein, die Nahrung wird schmäler und minderwertiger, die Familie wird gezwungen, die ziemlich entsprechende Wohnung gegen immer schlechtere umzutauschen.

Inzwischen erkrankt das eine oder andere Mitglied der Familie, oder gar das broderwerbende Familienhaupt; Arzt und Arzneien sind zwar zur Verfügung, aber weder genügende Nahrung oder entsprechende Pflege.

Hierauf folgt das Verkümmern, in Folge dessen der Organismus sich zur Reception jedweder Krankheit, in den meisten Fällen der Tuberkulose vorbereitet und zur Ausscheidung der infizierenden Stoffe gänzlich unfähig ist.

3. Hinsichtlich der Besserung der Wohnungsverhältnisse geschah vieles während der Revision der Baustatuten; die Baumeister und Baubesitzer umgehen jedoch dieselben in den meisten Fällen, indem sie die Behörden vor ein *fait accompli* stellen.

Wie gross der Unterschied der Anzahl der Sterbefälle in Folge Besserung der Wohnungen, beziehungsweise der Bauten ist, zeigt sich eklatant, wenn wir die Sterbefälle von zwei *neben einander liegenden Gassen* unserer Stadt betrachten. Als Beispiel mag die Pata- und die Györgyfalvigasse dienen, deren Gebäude, beziehungsweise Wohnungen im ersten Dezennium vollkommen gleicher Art waren, erstere im II. und III. Dezennium ziemlich ausgebaut wurde, während in letzterer kaum einige annehmbare Wohnungen errichtet wurden.

In der erstgenannten Gasse sank die Zahl der Sterbefälle, welche im I. Dezennium 70.76% ausmachte, im III. Dezennium auf 25.59%, hingegen in letztgenannter Gasse von 60.30% blos auf 48.21%. Noch auffallender ist das Verhältnis der Sterbefälle in den Fellegvari-ut und Fellegvari-oldal genannten zwei Gassen, in deren ersterer die Zahl der Sterbefälle von 62.00% auf 34.53% herabgestiegen ist, in letzterer hingegen nur von 44.69% auf 43.90%.

Gerade so wie in den erwähnten zwei Gassenpaaren verhält sich die Abnahme sowohl der Sterbefälle überhaupt als auch derjenigen der tuberkulösen Fälle in allen Bezirken der Stadt; in den Bezirken hingegen, wo auch gegenwärtig noch viele enge, feuchte Schlupfwohnungen reichlich sind, ist kaum oder eben gar keine Besserung wahrzunehmen.

Sehr traurigen Erfolg ergiebt die mangelhafte Nahrung, deren Grund gewöhnlich in mit der Verminderung des Erwerbes unter den Familienmitgliedern vorkommenden Krankheitsfällen, Faulheit, arbeitsscheu gepaarten Trunksucht liegt, zu Folge welcher im III. Dezennium die tuberkulösen Sterbefälle bei den Kindern im Alter von 0–5 Jahren und bei den Jünglingen im Alter von 15–25 Jahren auffallend zugenommen haben.

Auch der Umstand, dass 12% der Verstorbenen als lebensunfähig und mit verschiedenen Krämpfen zu Grunde gehen, ist der Trunksucht zuzuschreiben.

Auf behördlichem Wege konnte zur Verhinderung des Alkoholismus nur soviel geschehen, dass die Sperrstunden der Schenken verkürzt wurden. Auf sozialem Wege wurde ein Anti-Alkoholisten-Verein gegründet.

4. Die Infektion geschieht im Wege der Athmungs- und der Verdauungsorgane.

(a) Die Athmungs-Organe nehmen die Infektionsstoffe unmittelbar aus dem eingeathmeten Staube ein. Diese Stoffe stammen einerseits aus dem durch tuberkulöse Kranke in den Gassen ausgeworfenen Speichel und andererseits aus den Staubtüchern, die durch die Fenster auf die Gasse geschüttelt werden.

Unsere Behörde hat sich im III. Dezennium bemüht, es durch wiederholte Kundmachungen zu erreichen, dass das Speichelauswerfen auf den Gassen unterbleibe. Unterbringung von Spucknäpfen auf der Gasse hat wegen Ungezogenheit der niederen Klassen des Volkes nicht stattgefunden.

Das Ausschütteln der Staubtücher auf die Gassen ist bei Strafe verboten.

(b) Behufs Verhinderung der Infektion im Wege der Verdauungsorgane wurden im III. Dezennium strenge Marktregeln in's Leben gerufen.

Namentlich dürfen Lebensmittel auf die Marktplätze nur in absolut reinen Gefässen, Körben etc. geliefert werden; gebraten oder gekocht geniessbares Obst, Mehlspeisen, Backwerk etc., müssen immer zugedeckt sein; blos je ein Stück darf als Muster unbedeckt bleiben. Süsse und sonstige Zuckerbäckerwaren dürfen nur in mit gut schliessenden Glasdeckeln versehenen Kästen feilgeboten werden.

Das Auswählen der Backwerke und Betasten derselben ist verboten.

Die Fleischwaren kommen von der gemeinsamen Schlachtbrücke in den Verkehr. Hier überwacht ein Direktor (pensionierter Oberinspektor des Tiersanitätswesens) nebst zwei städtischen Tierärzten die gesunde Qualität des Fleisches.

Schliesslich werden die Wohnungen, das Bettzeug und die getragenen Kleidungsstücke der an Tuberkulose Verstorbenen nach der Beerdigung von Amts wegen desinfiziert.

* * * *

Als Ergänzung der umschriebenen und vollzogenen Massregeln würde ich noch den Vollzug folgender Verfügungen für nötig halten:

(1) Behufs Verringerung der Erblichkeit wäre es notwendig, belasteten Eltern und solchen allgemein schwacher Konstitution dazu Hilfe zu leisten, dass solche Mütter ihre Neugeborenen nicht selbst säugen, sondern dieselben entweder mit gesunden Ammen oder mit Kuhmilch bekannter Güte erziehen. Notwendig wäre auch die Hilfeleistung seitens wohltätiger Vereine oder Kinder-Versorgungs-Anstalten zur weiteren Erziehung der Kinder.

(2) Behufs Milderung der Armut wäre die Errichtung von Fabriken, gemeinsamen grossen Werkstätten und industriellen Anlagen nötig, damit die Arbeiter zu Beschäftigung und somit zu Erwerb gelangen.

Gleichzeitig jedoch wäre die Verfügung notwendig, dass die Zahl der Schenken vermindert werde und dass dieselben nicht bis spät in die Nacht geöffnet bleiben dürfen.

(3) Nötig wäre weiter die Statuirung strenger Bauordnungen, welche das Bauen von Kellerwohnungen, von engeren Wohnungen als 20 Quadratmetern und niederen als 3.5 Metern auf keinen Fall gestatten würden und im Falle der Umgehungen der Bauordnungen wäre nebst Verhaltung dazu, dass der betreffende Bauteil abgerissen werde, sowohl der Baumeister als auch der Baubesitzer strenge zu bestrafen.

Wenigstens 20% des zu bebauenden Grundstückes müsste frei gelassen werden.

Für die Arbeiter ärmeren Standes wäre mit auf gesundem Boden zu errichtenden gesunden und wohlfeilen Wohnungen vorzusorgen.

Der Infektion wäre durch behördliche Anordnungen, deren Befolgung strenge überwacht und deren Umgehung strenge bestraft würde, in der Weise vorzubeugen, dass das Speichelauswerfen auf öffentlichen Gassen verboten würde; hiebei wäre die Schädlichkeit solchen Gebahrens auf sozialem Wege in den weitesten Kreisen zu verkünden.

Auf behördlichem Wege wäre weiter das Ausschütteln des Staubes auf die Gassen bei Strafe zu untersagen.

Auch wäre die Entfernung der Teppiche aus den Wohnungen auf sozialem Wege zu Stande zu bringen.

Notwendig wäre strenge Kontrolle über die zum Verkaufe angebotenen Nahrungsmittel, regelmässige Untersuchung der Kuhställe und der Melkkühe, Verbot des Verkaufes von Milch tuberkuloseverdächtiger Kühe und Hinwirkung auf sozialem Wege, dass Milch nur in aufgekochtem Zustande genossen werde.

Schliesslich wäre Tuberkuloseverdächtigen das Melken der Kühe und der Umgang mit der Milch strengstens zu verbieten.

The Municipal Regulations Adopted against Tuberculosis in Kolozsvar, East Hungary, and the Measures Recommended.—(Bartha.)

I. (1) The new Hungarian law relating to insurance of workmen is destined in the future to act as a powerful hindrance to the spread of tuberculosis. (2) A good deal was accomplished by the recent revision of building regulations to improve the living conditions. (3) The closing hours of taverns have been shortened. (4) By means of repeated proclamations the attention of the inhabitants has been called to the danger of indiscriminate

expectoration. (5) A penalty is attached to shaking out dust-cloths on the street. (6) Provisions must be brought to market in absolutely clean vessels, baskets, etc. Fruit, pastry, etc., must be protected from flies; confectionery may be exposed for sale only in cases covered with tightly fitting glass lids, and customers are not permitted to finger the wares for the purpose of making a selection. (7) The salting is done in a common abattoir, from which the meat is sent out to the dealers. In the abattoir the quality of meats is controlled by a director, and two veterinary surgeons are appointed in the service of the city. (8) Rooms occupied by persons who died of tuberculosis, their bed-linen and the clothing used by them, are disinfected by the city.

II. The following additional regulations are recommended: (1) That assistance be given to puerperal women among the poorer classes so as to relieve them of the necessity of nursing their children when they do not possess a strong constitution. The furnishing of suitable cows' milk for their infants. (2) The encouragement of industries in order to mitigate the poverty of the lower classes. (3) The reduction in the number of taverns. (4) Stringent building regulations. (5) The erection of cheap dwellings for women. (6) Spitting to be strictly forbidden. (7) The removal of tuberculous patients and those who are suspected of tuberculosis, from dairies. (8) Strict supervision of dairies.

La Regularizacion Municipal adoptada contra la tuberculosis en la Ciudad Libre Kolozsvar, Hungaria del Este, y las medidas Recomendadas.—(BARTHA.)

I. (1) La nueva ley de Hungaria con relación al aseguro de los obreros, esta destinada a ser en el futuro un poderoso factor contra la propagación de la tuberculosis. (2) Mucho se ha conseguido con la revisión reciente en cuanto a la regularización en la construcción de los edificios y el mejoramiento de las condiciones de vida. (3) Las horas en las cuales deben cerrarse las tabernas han sido disminuidas. (4) Por medio de repetidas proclamas la atención de los habitantes se ha despertado en cuanto a los peligros de la expectoración. (5) Existe una penalidad contra el sacudir el polvo de los vestidos en las calles. (6) Las compras en los mercados deberán hacerse en recipientes limpios, canastas, etc. Las frutas, colaciones, etc., deben estar protejidas de las moscas; la venta de dulces y pasteles se permite solamete cuando estos estan guardados en recipientes bien cerrados, y al comprador no le es permitido tocar con los dedos los objetos de venta a fin de hacer la selección de éllos. (7) El destase y salado de las carnes es hecho en los rastros, de donde éstas son enviadas a los vendedores. En los rastros la calidad de la carne esta bajo la supervisión de un director y dos veterinarios nombrados por la ciudad. (8) Las habitaciones en las cuales ha fallecido

una persona de tuberculosis, la ropa de cama y los vestidos usados por el difunto, son esterilizados por la ciudad.

II. Las regulaciones siguientes son tambien recomendadas. (1) Se les da asistencia, durante el estado puerperal, a las mujeres pobres a fin de evitarles la necesidad de nutrir ellas mismas a sus niños cuando estas no poseen una constitución fuerte. Se les proveé de leche para la alimentación de sus niños. (2) El aumento de las industrias á fin de aliviar la clase pobre. (3) La reducción del numero de tabernas. (4) Regularización extricta en la construcción de las casas. (5) La construcción de habitacines baratas para las mujeres. (6) El acto de escupir está extrictamente prohibido. (7) La eliminación de personas tuberculosas y de aquellos sospechosos de la enfermedad en las lecherias. (8) Supervisión extricta de las lecherias.

Arrêtés Municipaux, adoptés déjà contre la Tuberculose dans Kolozsvar (Hongrie orientale), et Autres Mesures recommandées.—(Bartha.)

I. (1) La nouvelle loi hongroise d'assurance pour les ouvriers est destinée à agir désormais comme un puissant obstacle au progrès de la tuberculose. (2) Un grand pas en avant a été fait pour améliorer les conditions de vie par la révision des règlements portant sur les habitations. (3) L'heure de fermeture des tavernes a été avancée. (4) L'attention des habitants a été portée par le moyen de proclamations sur le danger des crachements. (5) Il est interdit sous peine d'amende de secouer les linges à épousseter dans la rue. (6) Les provisions doivent être amenées au marché dans des paniers ou vases absolument propres. Les fruits, la pâtisserie doivent être protégés contre les mouches; la confiserie ne peut être exposée pour être vendue que dans des rayons couverts soigneusement par des glaces, et les acheteurs ne peuvent toucher les marchandises pour faire leur choix. (7) Le bétail est abbatu dans un abattoir commun d'où la viande est envoyée aux marchands. Dans l'abattoir la qualité de la viande est contrôlée par un directeur et par deux vétérinaires au service de la ville. (8) Les chambres, la literie et les vêtements de personnes mortes de la tuberculose sont désinfectés par la ville.

II. Les règlements suivants sont reccommandés (1) Que des secours soient fournis parmi la classe pauvre aux femmes en couche, pour délivrer celles qui ne possèdent pas une forte constitution de la nécessité d'allaiter leurs enfants, et qu'on leur fournisse du lait de vache. (2) Que les industries soient encouragées pour diminuer la misère. (3) Que le nombre de tavernes soit réduit. (4) Lois sévères portant sur les habitations. (5) Construction de maisons ouvrières à bon marché. (6) Stricte interdiction d'expectoration. (7) Exclusion des personnes atteintes de tuberculose ou supposées atteintes, des laiteries. (8) Surveillance stricte des laiteries.

CONCLUSIONES SOBRE LA PROFILAXIA DE LAS TISIS.

Por Dr. Camilo Calleja,
Valladolid.

1. El indice que mejor revela las malas condiciones en que viven los habitantes de las poblaciones es la mortalidad por tisis; y viceversa, el verdadero progreso ó mejoramiento de la sociedad en las poblaciones se marcara sobre todo por la reducción de astenicos y el consiguiente descenso en el numero de defunciones por tisis.

2. Deben considerarse como enfermedades distintas ó diferentes especies morbosos las tuberculosis primitivas ó exogenas, esto es, sin predisposicion, y las tuberculosis consecutivas á otras enfermedades, ó tuberculosis anfigenas, cuyo principal factor es alguna astenia precursora; y tambien diferenciamos las tisis en exotisis y anfitisis, segun que procedan de una ú otra especie de tuberculosis. Ademas, las anfitisis son procesos muy complejos, no solamente por los antecedentes, sino tambien por contribuir á desarrollar la enfermedad otras bacterias que no son tuberculosos.

3. Cuando los tegumentos (piel y mucosa de los orificios exteriosos) se hallan en estado normal, sin astenia, ni soluciones de continuidad, no se producen las tuberculosis aunque los germenes determinantes se pongan en contacto; mientras que se los bacilos se yuxtaponen sobre tegumentos asténicos encuentran masa abonada para su proliferación hasta invadir todos los tejidos que se hallen en dicha condición.

4. Cuando se inoculan los bacilos tuberculosos á sujetos sanos, producen infecciones que son siempre nocivas; pero cuando se yuxtaponen en partes asténicas, producen invasiones beneficiosas (microbiomaquia), porque dichos germenes estimulan la reacción vital por su acción oxidante y termógena, con lo cual se mejoran los estados asténicos y se dismimuyen las predisposiciones á muchas enfermedades caquectizantes, como las tisis, anemias progresivas, leucemias, neoplasias malignas y gangrenas. Por tanto, las tuberculosis anfigenas son afecciones curativas.

5. Poquisimas personas realmente fuertes se ponen tisicas por el contacto más ó menos intimo con tisicos; mientras que los individuos débiles ó asténicos, sobre todo si son dolicosomas (cuerpo estrecho) y residen en poblaciones no situadas en climas de altura, se ponen frecuentemente tisicos. Por consiquiente, la exposición al contagio del virus tisiogeno depende principalmente de las condiciones individuales y enfermedades asténicas que

padezca ó haya padecido el sujeto ó sus progenitores y raras veces ocurre el contagio sin dichos antecedentes.

6. Las tisis son las causas inmediatas de mayor mortandad; pero las tisis más frecuentes y que producen mayor numero de defunciones no son las primitivas ó puramente tuberculosas (exotisis) sinó las tisis mixinfecciosas consecutivas á las astenias y sobre todo la determinada por escasez del oxigeno constitutivo de nuestro cuerpo (hipoxigenia). Por tanto, debemos culpar primeramente á la hipoxigenia y despues á las otras astenias de la muerte de la mayoria de los casos que figuran en la estadistica bajo el encabezamiento de tuberculosis. Las tisis agudas y demas exotisis son todas, ó casi todas, mortales; pero, la mortandad por ellas es poco numerosa porque son infrecuentes.

7. Hay que proclamar el dualisimo profilactico de las tisis, puesto que para prevenir las anfitisis hemos de evitar y tratar las enfermedades asténicas, sobre todo la hipoxigenia, mientras que para prevenir las exotisis hay que procurarse la limpieza higienica (asepsia y antisepsia) á fin de librarse todo lo posible de las exposiciones al contagio del virus tuberculoso. Contamos, sin embargo, con una medida profilactica comun á todas las tisis y es la purificación del ambiente, puesto que asi se evitan las hipoxigenias primitivas y á la vez se aminora la profusion bacilar y con esto habrá menos exposición al contagio.

8. Aunque las tuberculosis ordinarias ó anfigenas sean afecciones curativas (teraponosis), sera mejor, sin embargo, prevenirlas, librando á la humanidad de las astenias, que tener que curar estas cuando los sujetos son ya el pasto de los bacilos tuberculosos. Por consiguiente, la profilaxis de las anfitisis ha de comprender la prevención y curación de las astenias que más predisponen á las tisis, á saber: hipoxigenia, discrasias asténicas (especialmente los dolicosomas), infecciones crónicas (sifilis), intoxicaciones cronicas (alcoholismo), y anémias anhigidas (subalimentación, ponosis é inaccion).

9. Hay muchas probabilidades de poder prevenir las anfitisis cuando el estado asténico no es demasiado intenso, aunque se halle ya la predisposicion en el grado fimatoso ó tuberculoso propiamente dicho. Pero no han de confundirse los terminos "tisis" y "tuberculosis" como suele suceder. Dominemos el terrorifico prejuicio que produce la cifra de mortandad consignada por la estadistica en la casilla de tuberculosis, pues al apuntar bajo este nombre todas las defunciones por tisis se padece un error, porque la mayoria de las tisis no son puros contagios tuberculosos sino consecuencias de mixinfeciones que vienen á complicar enfermedades astenicas. Trás dicho error suele venir el falso juicio de creer que el médico se equivoca cuando se cura un enfermo diagnosticado de tuberculosis, siendo asi que las afeciones tuberculosas son las más curables.

10. Para librarse de las astenias precursoras de las anfitisis hay que satis-

facer las principales preceptos de la higiene, especialmente abasteciendo á la naturaleza humana de los medios esenciales (ambiente y alimentos), ejerciendo con proporcionada actividad las funciones del cuerpo, y siguiendo las medidas sociales y privadas que sirven para librarse se las infeciones é intoxicaciones más frecuentes. Tambien hay remedios quimicos y fisicos que pueden ejercer una acción paliativa sobre las astenias, advirtiendo que no hay recurso alguno que sea especifico, puesto que las tuberculinas y productos sucedánios únicamente benefician por su accion eubiósica o estimulante de la reacción vital, perjudiciando á los asténicos si llegasen a producer en ellos la inmunizacion, puesto que, entonces, impidiendo la invasion de los bacilos tuberculosos se desarma a la naturaleza de la influencia de este gran remedio.

11. La profilaxis de las exotisis ofrece, al parecer, dos indicaciones: ataque contra los bacilos tuberculosos, y defensa del cuerpo por medio de la inmunizacion. Pero aunque estas dos indicaciones sean racionales, en la práctica no pueden satisfacerse puesto que el virus se halla en todas partes, es ubicuitario y siendo las exotisis padecimientos tan raros seria imprudente inocular los productos inmunizadores a los individuos fuertes. Quando es de todo punto imposible saber si el presunto remedio seria peor que el mal que se queria evitar. Por tanto la profilaxis de las exotisis se reducira a seguir las reglas generales de la limpieza minuciosa (asepsia y antisepsia) de las partes que se hallan mas expuestas a la inoculacion del virus tuberculoso, como sucede donde hay alguna herida en individuos que permanecen en lugares insanos, ó que viven en contacto intimo con tuberculosos que arrojan productos morbosos al exterior.

Corolarios.

Proposiciones á los altos poderes sobre las medidas mas perentorias que estos han de tomar para reducir la enorme cifra de mortandad por tisis.

1. Fomentar la educacion profilactica en escuelas y gimnasias al aire libre, donde no se pervierta el instinto de conservacion de los niños que repelen los lugares cerrados, y donde se procure desarrollar y ejercer proporcionalmente las fuerzas musculares y las facultades intelectuales, con lo cual se forman buenas naturalezas, y por tanto se aminorará la tendencia a los vicios y se disminuera considerablemente el numero del tisicos.

2. Propagar la instruccion profilactica por medio de cartillas populares, para enseñar, principalmente a las madres, las reglas, la buena alimentacion, de la limpieza y de los cuidados en el ejercicio de las actividades voluntarias tanto corporales como intelectuales, y tambien promulgar, colocando en los sitios donde mas se cometen las faltas de higiena, carteles en los que se adviertan los peligros de los contagios venereos y las consecuencias del alcoholismo y nicotismo, no solo para si pero tambien para la prole.

3. Perfeccionar la inspecion sanitaria para que se cumplan las reglas profilacticas, teniendo un buen personal al que, a cambio de una retribucion que le permita vivir con independencia, se le exiga el cumplimiento de sus deberes, entre los cuales los principales han de ser: procurar que tengan buen ambiente y alimentos sanos los habitantes de las poblaciones; perseguir los vicios y no permitir que se interrumpar el descanso ni el trabajo de los cuidadanos en las horas oportunas, y en fin que haya limpieza tanto dentro de las casas como en la via publica.

Prophylaxie de la phtisie.—(CALLEJA.)

A. Classification de la phtisie en amphiphtisie et exophtisie divisant la premiére en hypoxigénétique, diathétique, syphilitique, alcoolique, etc.

B. Prophylaxie de l'amphi phtisie en général et de ses diverses variétés en particulier.

C. Prophylaxie de l'exophtisie ne considérant recommandable aucune immunité préventive.

D. Conclusions: des déductions résumant les idées les plus importantes à propos de la prophylaxie de la phtisie.

Prophylaxe der Schwindsucht.—(CALLEJA.)

A. Klassifizierung der Phthisis in Amphi-Phthisis und Exo-Phthisis; die erstere wird eingeteilt in: hypoxigenetische, diathetische, syphilitische, alcoholische, etc.

B. Prophylaxe der Amphi-Phthisis im allgemeinen und ihrer verschiedenen Arten im besonderen.

C. Prophylaxe der Exo-Phthisis in Bezug auf präventive Immunisation nicht zu empfehlen.

D. Schlussfolgerung: Schlüsse, die bedeutendsten Ideen über die Verhütung der Schwindsucht zusammen zu stellen.

Prophylaxis of Phthisis.—(CALLEJA.)

A. Classification of phthisis into amphi-phthisis and exophthisis, dividing the former into: hypoxigenetic, diathetic, syphilitic, alcoholic, etc.

B. Prophylaxis of the amphi-phthisis in general and of its several varieties in particular.

C. Prophylaxis of the exophthisis considering preventive immunization not recommendable.

D. Conclusions: Deductions summarizing the most important ideas about the prophylaxis of phthisis.

SECTION VI.

State and Municipal Control of Tuberculosis (*Continued*).

THIRD SESSION.

Tuesday afternoon, September 29, 1908.

TUBERCULOSIS IN LIVERPOOL. THE WORK OF THE INTERNATIONAL ASSOCIATION AGAINST TUBERCULOSIS. THE RELATIONS OF THE FEDERAL GOVERNMENT TO THE TUBERCULOSIS PROBLEM. JOINT SESSION BETWEEN SECTIONS V AND VI TO DISCUSS THE RELATIONS OF POLICE POWER TO PUBLIC HEALTH.

Section VI was called to order by the President, Surgeon-General Walter Wyman, on Tuesday afternoon, September 29th, at half-past two o'clock.

Mr. A. Shelmerdine, Counsellor of the City of Liverpool, presented the first paper, that of Dr. E. W. Hope. Mr. Shelmerdine expressed Dr. Hope's regrets that he could not attend the Congress.

THE DECLINE OF PHTHISIS AND OF OTHER FORMS OF TUBERCULOSIS IN LIVERPOOL.

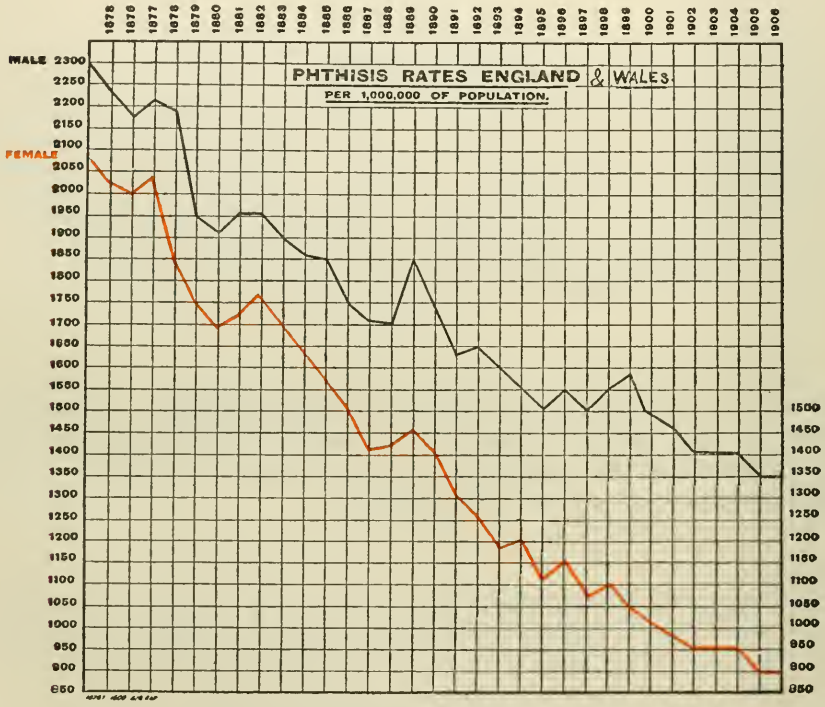
By E. W. Hope, Esq., M.D., D.Sc.,
Medical Officer of Health, Municipal Offices, Liverpool.

The city of Liverpool affords a singularly interesting illustration of the connection between improved sanitation and the promotion of the public health. The decline in Liverpool of phthisis, and of other forms of tuberculosis, as the outcome of direct improvements in sanitation, is so conspicuous as to deserve attention from an international congress, such as that of Washington, and I wish, in the briefest possible manner, consistently with making the subject plain, to lay the facts before the meeting.

The charts exhibited on the wall indicate the decline in the deaths from

phthisis during the last twenty-three years. These serve to establish the fact of a material decline, during that period, in the prevalence of phthisis, more especially among females, the less marked decline in the male rate being at least partly due to employment, exposure, and habits of life. The rate in the city of Liverpool in this particular follows that of England as a whole.

If instead of taking the period indicated we take a much longer one,—going back to the year 1856, as shown on the chart,—we find the death-rate



No. 1.—Deaths from phthisis per 10,000 of the population in England and Wales since 1838. Sexes differentiated since 1875.

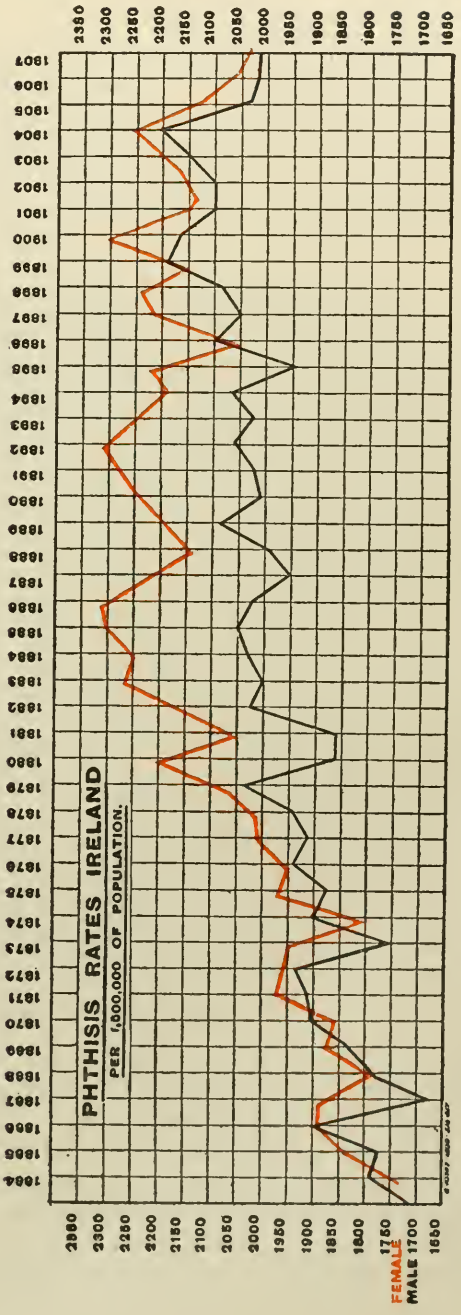
per 100,000 from phthisis has progressively declined from that day onward in a very remarkable degree. For instance, the figures for the last five decades, 1856 to 1905, and during the last two years, 1906–07, are as follows:

1856 to 1865.	1866 to 1875.	1876 to 1885.	1886 to 1895.	1896 to 1905.	1906–07.
350.7	333.9	255.3	212.9	182.7	162.7

The same table also exhibits the fact of the great decline in all forms of tuberculosis other than phthisis, which have occurred among children below

five years of age during those periods.

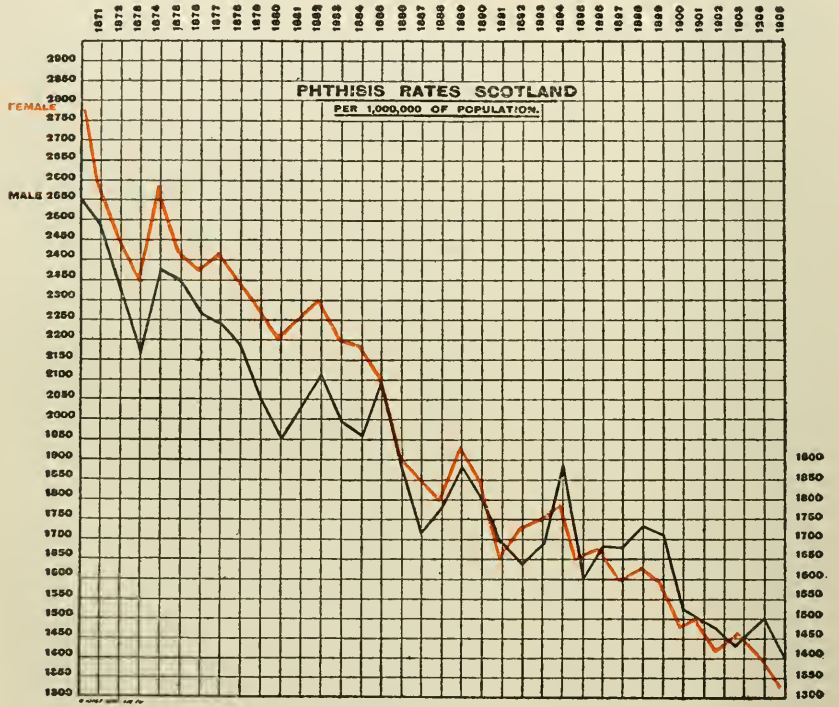
Long before the exact nature of tuberculosis was established, the disease was known to be closely associated with certain insanitary conditions, but, at the commencement of the fifty-year period over which we are glancing, and indeed to a diminishing extent for many years afterward, its importance was completely overshadowed by the more formidable rival, typhus fever, which was very prevalent in Liverpool, and it was the intention to suppress typhus fever, rather than the expectation of diminishing phthisis and other forms of tuberculosis, that led originally to the sweeping away, at great cost to the municipality, of large areas of unwholesome, ill-ventilated, and viciously constructed streets of insanitary dwelling-houses. Probably not less than 24,000 of such dwellings have been cleared away, and wholesome, airy, sunlit habitations have been erected in their stead—a work which indeed is even now in progress. There is very little reason to question the extremely important results, so far as tuberculosis is concerned, which have followed upon these measures, and it



No. 2.—Deaths per 1,000,000 in Ireland since 1864. Sexes differentiated since 1875.

is sufficient to mention them to enable an audience of experts to link together the operations and their results.

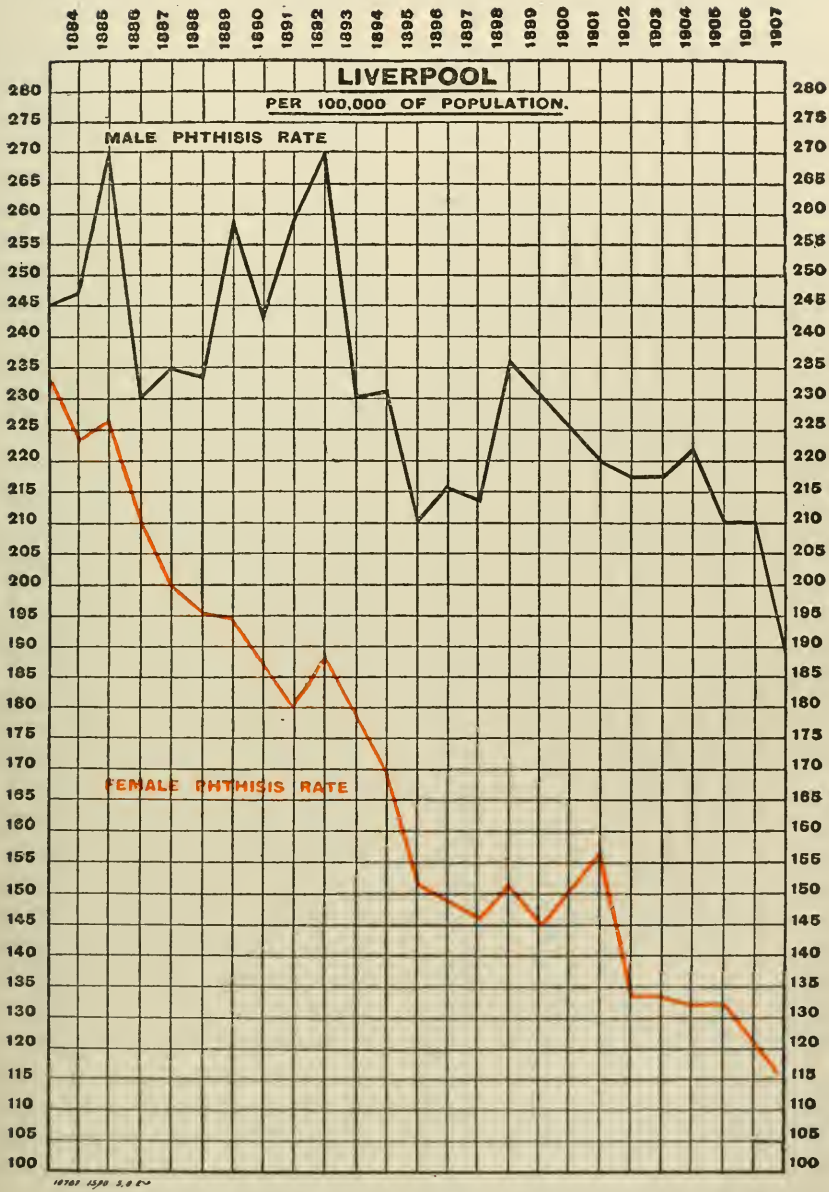
Side by side with this work, but more especially of more recent years, as the nature of the disease to be combated was appreciated, adjuncts to the ventilation of the city—wider streets, parks, gardens, and open spaces—have been provided. Facilities of transport have largely assisted in this, while personal hygiene has received its facilities from the provision of baths, wash-houses, and so forth, for the poorer classes. The supervision of schools and



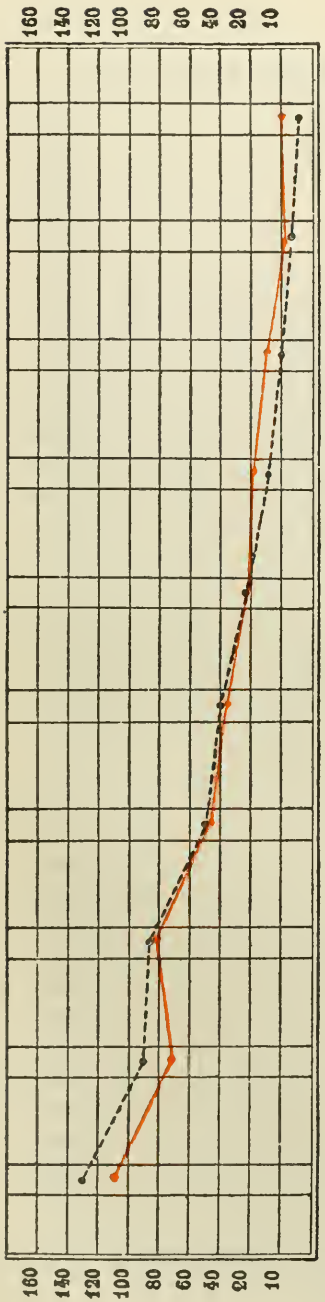
No. 3.—Deaths per 1,000 000 in Scotland since 1871. Sexes differentiated.

of work-places, coming within the scope of the Factories and Workshops Act, is exceedingly beneficial.

With regard to the supervision of those food-stuffs which may convey tubercular infection, time permits it only to be stated that the closest possible care is exercised under the Dairies, Cowsheds and Milk Shops Orders of 1885, 1886, and 1899, to insure a pure milk-supply and to safeguard the health of the cows supplying it. Special acts of the British Parliament were obtained in 1900 to authorize the officers of the city corporation to enter into any cow



No. 4.—Liverpool. Male and female deaths per 1000 since 1884.



No. 5.—Liverpool. Deaths from tuberculosis, other than phthisis, at ten age periods, comparing the deaths of the last three years (in red) with the preceding ten years (in black). *Note:* Average numbers are taken, and not rates, and on an increasing population.

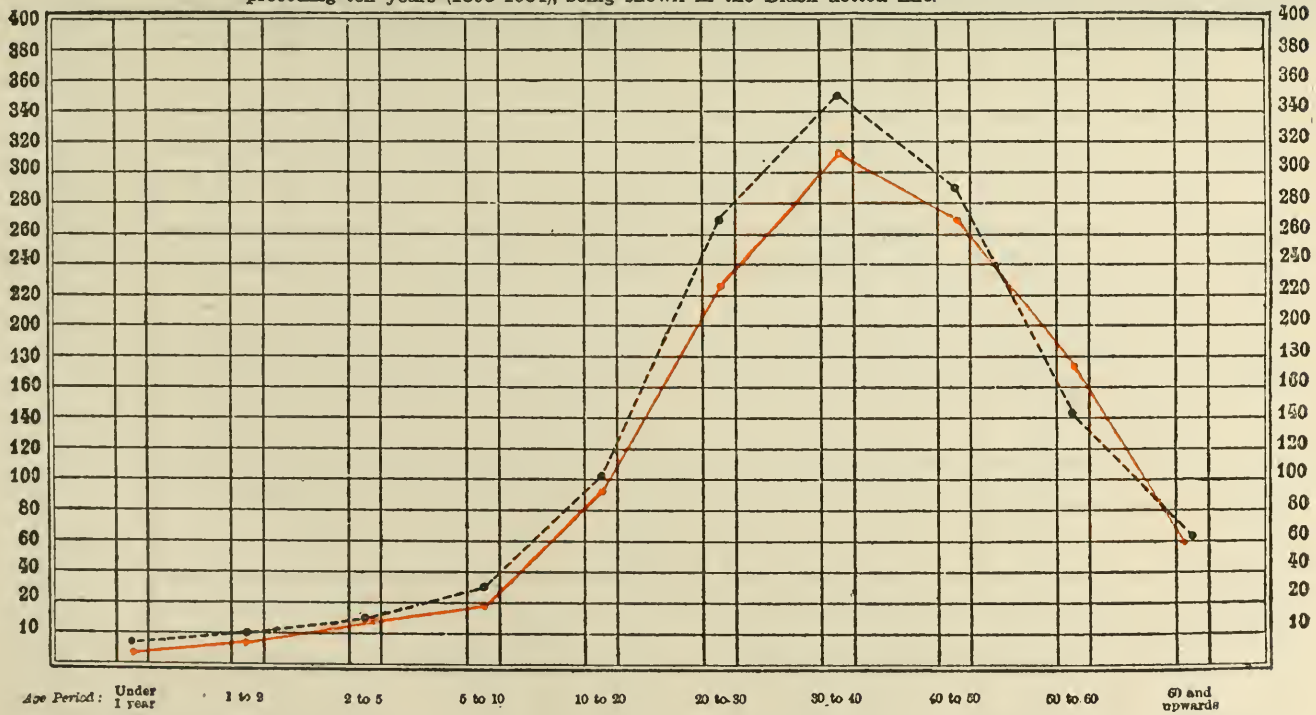
stables outside the municipal jurisdiction from which milk is sent into the city, so that cow-sheds outside or within the city can now be supervised in the interests of the Liverpool milk consumer. The corporation have, with a specific object and with due limitations, themselves provided a milk-supply for the very young whose mothers cannot suckle them. The decline, and the continued decline, in tubercular diseases, other than phthisis, in young children, is shown on the diagrams and on the charts.

But the corporation of Liverpool have recognized the importance of instructing the patient and those who live with him as to the best conduct of life. For upward of ten years, cards of instruction, similar to those submitted, have been freely distributed through the medium of the general hospitals, the dispensaries for the sick, and other charitable institutions to which the infected may go for advice or assistance. A voluntary system of notification of phthisis receives the loyal coöperation of the medical profession, and is of great value.

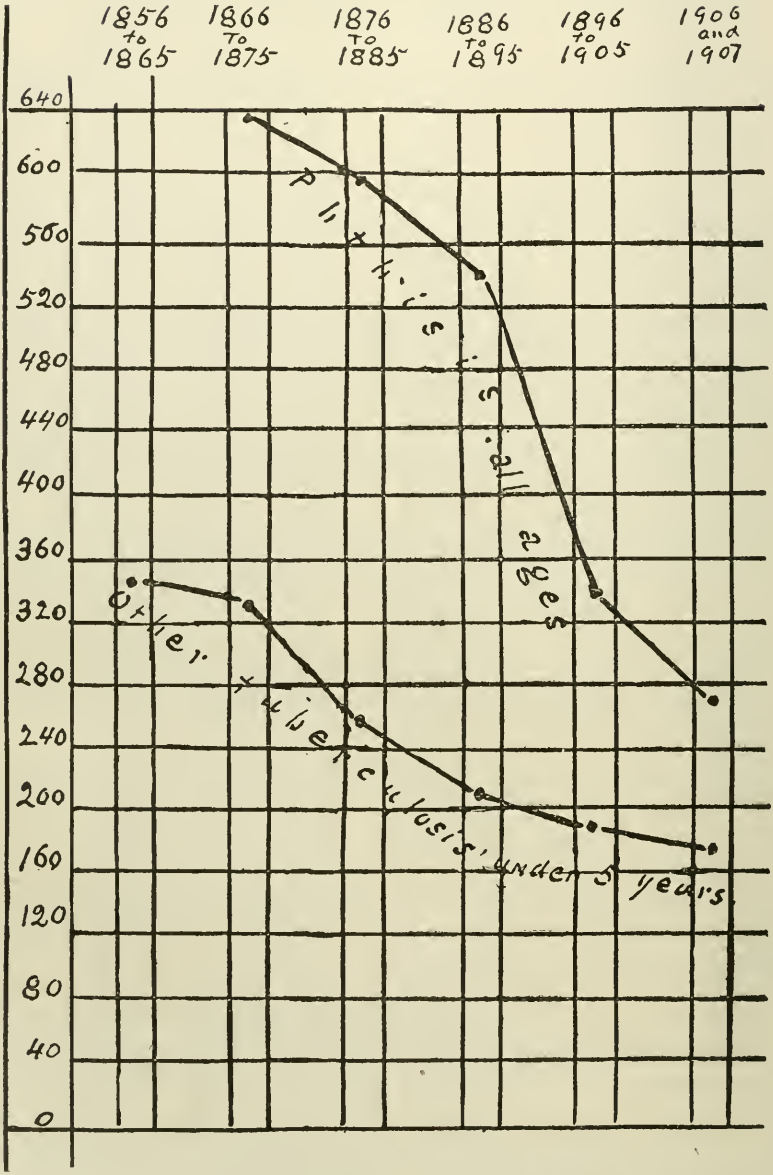
The Boards of Guardians of the City, in whose hands the relief of the destitute is placed, have established a small hospital especially for the relief of destitute consumptives who are willing to go to it, free of charge. The corporation of Liverpool have also

CITY OF LIVERPOOL.

Comparative view of the average number of Deaths from Phthisis at ten different age periods during the three years (1905-1907), shown in Red, the average for the preceding ten years (1895-1904), being shown in the Black dotted line.



No. 6.—Liverpool. Phthisis deaths at ten age periods, comparing the last three years (in red) with the preceding ten years (in black). The decline, it will be noticed, is in the earlier and working years of life, death being postponed to the later periods of life.



No. 7.—Diagram showing the annual average death-rate per 100,000, with the population at all ages, from phthisis and from tubercular diseases other than phthisis below five years of age (Liverpool).

set aside, for the last two years, a ward containing some twenty-four beds for suitable cases. Private philanthropy has erected a sanatorium in a pine wood at Delamere, near Liverpool, for the relief of sufferers who are able to pay a small sum, and it has also provided a magnificent establishment for chronic ailments of children at the summit of an elevation at Heswall, overlooking the estuary of the River Dee, in Cheshire.

These, no doubt, one and all, must be classed as accessories of value in the struggle against tuberculosis. That they will be of value is beyond question, but in no case must they be allowed to divert attention from the great public duty which devolves upon governing bodies of cities and towns, of efficiently carrying out the varied and intricate operation of sanitating the city in every direction.

It is doubtful if any more encouraging instance can be cited than the progress which has taken place in the city of Liverpool. It is undoubtedly true that from the fitful character of employment, and from many other reasons, her necessities were very great; that the fact of building thousands of insanitary dwellings constituted an experiment upon mankind of a colossal character, and that the remedying of these defects has been followed by incalculable benefit.

Decrecimiento de la Tisis y de Otras Enfermedades Tuberculosas en Liverpool.—(Hope.)

El escrito del Dr. Hope llama la atención sobre el hecho del decrecimiento de la Tisis y otras formas Tuberculosas en la ciudad de Liverpool. Sus Cuadros indican que el decrecimiento no se confina á ninguna edad ni sexo.

Los datos se extienden á cerca de 30 años; pero los cuadros y números relativos á más recientes años, demuestran un satisfactorio decrecimiento de la Tuberculosis en los períodos de la primera edad.

Este beneficioso resultado debe concedera, como debido á las grandes operaciones sanitarias llevadas á efecto en Liverpool, y de las cuales se hace referencia y á la circunstancia de que Liverpool constituye una ilustración interesante de la ventajas de sanidad mejorada en la lucha contra la Tuberculosis.

DIE TÄTIGKEIT DER INTERNATIONALEN VEREINIGUNG GEGEN DIE TUBERKULOSE.

Von Dr. F. Helm,
Stabsarzt an der Kaiser Wilhelms-Akademie, Berlin.

Nachdem in den Neunziger Jahren des vorigen Jahrhunderts in Frankreich kurz hintereinander mehrere Kongresse zum Studium der Tuberkulose stattgefunden hatten, lag die Idee nahe, eine permanente Kommission für die Tuberkulosebekämpfung zu bilden. Dieser Gedanke wurde zum ersten Mal von dem verstorbenen Hofrat Professor von Schrötter (Wien) auf dem internationalen Tuberkulosekongress in Paris 1898 formuliert; er fand jedoch trotz wiederholter Anregungen seine Verwirklichung erst, dank den Bemühungen und dem organisatorischen Geschick des Ministerialdirektors Excellenz Althoff, auf der I. internationalen Tuberkulosekonferenz in Berlin 1902, durch die Begründung der internationalen Vereinigung gegen die Tuberkulose. Das Präsidium dieser Vereinigung übernahm der leider inzwischen verstorbene Professor Brouardel (Paris); zur Leitung der Geschäfte wurde eine Verwaltungskommission gewählt mit Excellenz Althoff (Berlin) an der Spitze und fünf Mitgliedern aus verschiedenen Ländern: Professor Calmette (Lille), Ministerialrat Chyzer (Budapest), Geheimrat Professor B. Fränkel (Berlin), Dr. Raw (Liverpool) und Marinestabsarzt Dr. Rördam (Kopenhagen). Generalsekretär der Vereinigung wurde Professor Dr. Pannwitz (Berlin); ihr Sitz ist in Berlin. Zum Abzeichen der Vereinigung wurde auf Vorschlag von Dr. Sersiron (Paris) das rote Doppelkreuz bestimmt, das sich inzwischen neben dem einfachen roten Kreuz in der ganzen Welt gut bekannt gemacht hat. Die Verwaltungskommission erfuhr im Jahre 1907 auf der Konferenz in Wien eine Erweiterung durch die Bestellung von 12 "membres adjoints" aus verschiedenen europäischen Staaten; auf der diesjährigen Konferenz in Philadelphia wurde ihre Zusammensetzung durch Beschluss des grossen Rates endgültig so festgelegt, dass sie von nun ab aus dem Vorsitzenden und 21 Mitgliedern besteht, unter denen auch Amerika durch 2 Mitglieder vertreten ist. Nach dem Tode von Brouardel wurde Léon Bourgeois (Paris) im Jahre 1907 zum Präsidenten der Vereinigung gewählt.

Die internationale Vereinigung umfasst alle Länder der Erde, in denen die

Tuberkulosebekämpfung systematisch betrieben wird; sie vereinigt in sich die Vertreter der nationalen Tuberkulosegesellschaften von 22 Staaten, in der Weise, dass, je nach der Grösse der einzelnen Länder, zwei bis fünf Mitglieder aus jedem derselben der internationalen Vereinigung als ordentliche Mitglieder angehören. Zu ihnen zählen die berufensten Vertreter der Tuberkulosewissenschaft und der praktischen Tuberkulosebekämpfung, Aerzte, Forscher, Verwaltungsbeamte, Sozialpolitiker und Philanthropen. Ihre Gesammtzahl beträgt zur Zeit 68; sie bilden zusammen den engeren Rat der Vereinigung.

Um diesen Kern gruppieren sich einerseits die Ehrenmitglieder, einige 60 an der Zahl, Männer in hervorragenden Stellungen oder von hoher wissenschaftlicher oder praktischer Bedeutung, die von ihren Landsleuten wegen ihres Interesses an der Tuberkulosebekämpfung dieser Ehre für würdig gehalten worden sind, andererseits die korrespondierenden Mitglieder, jetzt etwa 720, die, sämmtlich in der Tuberkulosebekämpfung wissenschaftlich oder praktisch tätig, auf Vorschlag ihrer nationalen Komitees von dem engeren Rat erwählt werden. Die Gesammtheit aller Mitglieder bildet den grossen Rat der Vereinigung, der alle 3 Jahre einmal zusammentritt, während der engere Rat jedes Jahr eine Konferenz abhält.

"Die internationale Vereinigung gegen die Tuberkulose verfolgt lediglich praktische Ziele. Sie ist eine Gesellschaft für angewandte Wissenschaft. Was die Wissenschaft an Fortschritten biete, die Hilfsmittel zur Ausrottung der verheerenden Volkskrankheit auszugestalten, das will sie in praktische, für den täglichen Gebrauch geeignete Formen bringen." Nicht treffender als mit diesen Worten des Generalsekretärs Professor Pannwitz lässt sich die Tätigkeit unserer Vereinigung charakterisieren. Die internationale Vereinigung bildet gewissermassen eine Tuberkuloseakademie, aber mit ausgesprochen praktischen Tendenzen. Im Besonderen sieht sie ihre Aufgabe darin, die Tuberkulosebekämpfung auf solchen Gebieten zu fördern, deren erfolgreiche Bearbeitung erst durch das Zusammenwirken mehrerer beteiligter Länder ermöglicht wird, wie z. B. die Einführung einer internationalen Statistik, das vergleichende Studium der gesetzlichen und polizeilichen Bestimmungen über die Tuberkulose, die antituberkulöse Erziehung des Einzelnen und der Massen, die Vereinigung eines zum Laienunterricht geeigneten Lehrermaterials in einem Tuberkulosemuseun u. dergl. m.

Als Mittel zur Erfüllung dieser Aufgaben dienen in erster Linie die alljährlichen Konferenzen, deren siebente soeben in Philadelphia stattgefunden hat. Im Gegensatze zu den Kongressen, auf denen jeder Teilnehmer aus seinem Arbeitsgebiete nach eigener Wahl einen Vortrag hält, werden auf den Konferenzen der internationalen Vereinigung stets eine Anzahl von Fragen, die von der Verwaltungskommission ausgewählt und eventuell durch Rundschreiben und Fragebogen wohl vorbereitet sind,

behandelt. An den jedes Jahr stattfindenden Konferenzen, die statutengemäss Sitzungen des engeren Rates sind, nehmen ausser den ordentlichen Mitgliedern doch auch regelmässig eine Anzahl von korrespondierenden Mitgliedern als Zuhörer teil, während die in jedem dritten Jahre im Zusammenhange mit dem Tuberkulosekongresse stattfindende Sitzung des grossen Rates alle Mitglieder vereinigt. Aus Rücksicht auf die Propaganda desjenigen Landes, in welchem die Konferenz stattfindet, sind alle Sitzungen der Vereinigung, mit Ausnahme der rein geschäftlichen, öffentlich.

Von speziellen Fragen, mit denen die internationale Vereinigung sich bis jetzt auf ihren Konferenzen beschäftigt hat, erwähne ich: Die Anzeigepflicht, das Verbot, auf den Boden zu spucken, die Disposition und die Heredität der Tuberkulose, die Infektionswege der Tuberkulose, die Heilstättenkosten, die Auskunfts- und Fürsorgestellen, die spezifische (Tuberkulin-) Behandlung, die Tuberkulose im Kindesalter, in der Schule, in der Armee, unter den Prostituirten, in den Gefängnissen, die antituberkulöse Erziehung, Tuberkulose und Verkehr, Tuberkulose und Recht, Tuberkulose und rotes Kreuz, die Gefahren der Infektion durch tuberkelbazillenhaltige Milch, und die Massregeln dagegen. Einzelne von diesen Fragen sind abgeschlossen, andere bedürfen noch eingehender Bearbeitung und sollen auf den nächsten Konferenzen weitergeführt werden.

Ein weiteres Propagandamittel der internationalen Vereinigung ist die Herausgabe der Monatsschrift "Tuberkulosis," die jetzt im siebenten Jahrgang mit einer Auflage von 2800 Exemplaren erscheint, die nach allen Teilen der Welt versandt werden wo immer Tuberkuloseinteressenten leben. Die "Tuberculosis" bringt mit Vorliebe Uebersichten über den Stand einer bestimmten, gerade im Mittelpunkte des Interesses stehenden Frage, die auf die Tuberkulose Bezug hat, oder Darstellungen der Tuberkulosebekämpfung in den verschiedenen Ländern, gesetzliche und polizeiliche Bestimmungen, kurze Berichte über wichtige Neuerscheinungen in der Literatur und Technik mit. Bezug auf die Tuberkulose, und die offiziellen Ankündigungen, Rundschreiben und Berichte der internationalen Vereinigung. Um die Redaktion dieser Zeitschrift hat sich Professor Dr. A. Kayserling (Berlin) verdient gemacht.

Schliesslich dient auch die Geschäftsstelle der internationalen Vereinigung in besonderer Weise den Aufgaben derselben, indem sie wissenschaftliches Material sammelt und verarbeitet, den Verkehr mit den Mitgliedern unterhält und auf Wunsch über alle Tuberkuloseangelegenheiten Auskunft erteilt.

Die internationale Vereinigung legt besonderen Wert darauf, ihre Arbeiten und Beschlüsse den Behörden zu unterbreiten, um auf diese Weise die für notwendig erachteten Verbesserungen in der Gesetzgebung und Verwaltung anzuregen. So ist die im Jahre 1905 in Paris beschlossene internationale Mortalitätsstatistik dem internationalen statis-

tischen Institut übergeben worden; in Bezug auf die Mortalitätsstatistik wird eine Einigung angestrebt. So ist der Wiener Beschluss über die Anzeigepflicht allen Regierungen direkt und durch die Vermittelung der betreffenden nationalen Tuberkulosegesellschaften mitgeteilt worden.

Dasselbe geschah mit dem Resultat der vorjährigen Verhandlungen über die Infektionswege der Tuberkulose, aus denen für die Praxis der Schluss abgeleitet wurde, dass die Infektion auf verschiedenen Wegen in den menschlichen Körper gelangt, sowohl durch die Lungen, wie durch den Verdauungskanal, und dass demgemäss keine der bisher gebräuchlichen prophylaktischen Massregeln ausser Acht gelassen werden dürfte. Ebenso ist auch das in Wien angenommene Schema für die Lungenuntersuchung, die Turban-Gerhardt'sche Stadieneinteilung allen Regierungen übermittelt worden. Auch auf dem Gebiete der antituberkulösen Erziehung wurden wichtige Anregungen auf Antrag von Dr. Heron (London) an die Behörde der einzelnen Länder gerichtet. Das in Berlin begründete Tuberkulosemuseum hat sich als ein brauchbares Mittel der Volksbelehrung erwiesen und ist zum Vorbild geworden für eine Anzahl von Tuberkulosemuseen in anderen Ländern, Anstalten, die teils von den Behörden, teils von den nationalen Gesellschaften errichtet worden sind.

Zur verwaltungsmässigen Erfüllung dieser Aufgaben bedarf die internationale Vereinigung bedeutender Geldmittel, jährlich etwa 10,000 bis 12,000 Mark; dieser Betrag muss durch die jährlichen Beitragsquoten der zur Vereinigung gehörenden nationalen Gesellschaften—für jedes ordentliche Mitglied 100 Mark—oder durch freiwillige Beiträge von einzelnen Donatoren oder Tuberkulosegesellschaften gedeckt werden. Wenn es gelänge, die internationale Vereinigung durch die Unterstützung der an der Tuberkulosebekämpfung interessierten Regierungen oder durch grössere Spenden hochherziger und weitblickender Gönner auf eine breitere und sicherere finanzielle Basis zu stellen, so würde das zweifellos dem humanitären Wirken der Vereinigung eine wirksame Förderung und einen erhöhten Antrieb geben.

Work of the International Antituberculosis Association.—(HELM.)

1. The International Association against tuberculosis developed from the International Central Bureau for the prevention of tuberculosis, which was founded in Berlin in 1902. It includes all the countries of the world in which a systematic warfare against tuberculosis is carried on. At the present time the number includes 22 States. It counts among its members the most eminent authorities on tuberculosis and on practical methods of combating the disease in those countries; physicians, investigators, public

officials, sociologists, and philanthropists, who are active, honorary, or corresponding members. The total membership is about 800.

2. The object of the Association is to encourage those phases of the fight against tuberculosis which require the coöperation of all the countries in the world. These include comparative studies of law and police regulations in regard to tuberculosis; notification, disinfection, segregation of advanced cases, with the taking charge of consumptives by insurance institutions, occupational hygiene, the care of the home, etc. The introduction of uniform methods of gathering tuberculosis statistics, investigations in regard to the spread of tuberculosis to other countries and races, and, finally, the scientific inquiry into the causes of tuberculosis (infection paths, heredity and predisposition, disposition, occasional causes) and of the methods of treatment.

3. The means by which these problems are to be solved are, in the first place, the annual conferences of the Association (usually a session of the Inner Council, and every third year a session of the General Council), where scientific and practical questions in regard to which circular letters may have been sent out, are discussed. The publication of the monthly periodical, "Tuberculosis," which is now in its seventh year, with a circulation of 2800, sent to every part of the world wherever there are people interested in tuberculosis; and, finally, the work of the Business Bureau of the International Association, from which information is distributed on request on every subject relating to tuberculosis.

4. A report on the work of the International Association, its discoveries and conclusions, is sent to the governments of the various countries, and thus becomes available material for improving legislation bearing on tuberculosis and the methods for carrying on the campaign.

Trabajo hecho por La Asociación Internacional Contra Tuberculosis.—(Helm.)

1. La Asociación Internacional Contra Tuberculosis, tomó su origen del Bureau Central Internacional para la Prevención de la Tuberculosis, el cual fue fundado en Berlin en 1902. Este incluye todos los paises del mundo en los cuales existe una lucha sistematica contra la enfermedad. Al presente el numero incluye 22 Estados. Cuenta entre sus miembros las autoridades mas eminentes en tuberculosis, y los métodos prácticos para combatir la enfermedad en estos paises; medicos, investigadores, oficiales públicos, sociologistas y filantropistas, los cuales son miembros honorarios ó correspondientes, el numero total de éllos es casi de 800.

2. El objeto de la Asociación es fomentar aquellas faces de la lucha contra la tuberculosis que requieren la cooperación de todas las naciones

del mundo. Esto incluye un estudio comparativo de leyes y regulaconies políticas en cuanto á la tuberculosis; notificación, desinfección, segregación de los casos avanzados, el cuidado de los tísicos por las instituciones de aseguros, higiene en las ocupaciones, el cuidado del hogar, etc. La introducción de métodos uniformes para la colección de estadisticas, investigaciones en cuanto á la propagación de la tuberculosis en os otros paises y las otras razas y finalmente, las investigaciones en cuanto a las causas de la tuberculosis, (puertas de la infección, herencia y predisposición, disposición, causas ocacionales) y los métodos del tratamiento.

3. Los medios por los cuales este problema deberá resolverse son: en primer lugar, las conferencias anuales de la Asociacion (usualmente una sesión del consejo menor, cada tres años y una sesión del consejo mayor), en donde se trata de asuntos científicos y prácticos y se discute la cuestion en cuanto á las circulares que debieran haberse enviados. La publicación de una revista mensual sobre "tuberculosis," la cual se ha publicado durante los ultimos siete años, la circulación es de 2,800 y se envia á todas las partes del mundo en donde existe un interes sobre la tuberculosis; y finalmente, el trabajo del Bureau de Negocios de la Asociación Internacional el cual distribuye informes, cuando estos son requeridas, en cada tema relacionado con la tuberculosis.

4. Una comunicación del trabajo de la Asociación Internacional; sus descubrimientos y conclusiones, son enviados á los gobiernos de los diferentes paises, y por lo tanto constituye un factor importante en el mejoramiento de las legislaciones relacionadas con la tuberculosis, y los métodos de llevar á cabo la lucha contra la enfermedad.

Travaux accomplis par l'Association Internationale Antituberculeuse.— (HELM.)

L'Association Internationale Antituberculeuse est un développement du Bureau Central International de prévention contre la tuberculose, que fut fondé à Berlin en 1902.

L'Association comprend toutes les parties du monde où une guerre systematique contre la tuberculose est faite. Actuellement 22 états en font partie. Parmi ses membres se trouvent les autorités les plus eminentes sur la tuberculose et sur les méthodes pratiques de combattre le fléau dans ces pays—des docteurs, savants, officiers publics, sociologistes, philantropistes, qui sont membres actifs, honoraires ou correspondants.

La totalité des membres est d'environ 800.

L'association a pour but d'encourager les phases de la lutte contre la tuberculose nécessitant la coöpération de toutes les nations du monde. Les moyens pour arriver à ce but sont: l'étude comparative des lois et des

règlements de police concernant la tuberculose; notification; désinfection; ségrégation de cas avancés et soin de malades phtisiques par les cosiétés d'assurance de vie; règlements hygiéniques dans les différents métiers; soins des habitations, etc.; l'introduction de méthodes uniformes pour assembler les statistiques de la tuberculose; recherches sur la propagation de la tuberculose d'un pays à l'autre; recherches scientifiques sur les causes de la tuberculose (hérédité et prédisposition, disposition, causes occasionelles) et les méthodes de traitement.

Moyens de résoudre ces problèmes:

(*a*) Une conférence annuelle de l'Association (ordinairement une séance du Petit Conseil et une Séance du Grand Conseil) où les questions scientifiques et pratiques, pour lesquelles des circulaires ont été envoyées, sont discutées.

(*b*) La publication d'une revue mensuelle sur la "Tuberculose," laquelle est maintenant dans sa septième année, avec un tirage de 2,800 exemplaires, et qui est envoyée dans toutes les parties du monde où se trouvent des personnes intéressées à la tuberculose.

(*c*) Les travaux du Bureau d'Affaires de l'Association Internationale, qui envoie sous requête des informations sur chaque sujet relatif à la tuberculose.

(*d*) Un rapport des traveaux de l'Association Internationale, de ses découvertes et de ses conclusions, est envoyé au gouvernement des différents états, fournissant ainsi de précieux matériaux pour la législation contre la tuberculose et sur les méthodes de conduire la campagne.

THE DUTIES OF THE GOVERNMENT IN THE RESTRICTION OF TUBERCULOSIS.

By Victor C. Vaughan,
Ann Arbor, Michigan.

Government is, or at least should be, an organization framed and maintained for the public good. A government should protect the rights and property of its citizens, and should secure to each individual impartial justice in all the transactions of life. In its administration it should recognize no class distinctions, and equal justice should be meted out to each and every citizen alike. Each should be given his rights, and, what is of equal importance, should be compelled to perform his duties. No one should ask or be permitted a privilege that may result in harm to the health, happiness, or prosperity of another. The good of the whole means the good of each, and harm could result to none in a perfect government; the extent to which a government succeeds in bringing about this condition of affairs is a measure of its value and its perfection.

Our national government controls our relations with foreign conntries, regulates interstate affairs, and has direct jurisdiction over certain areas. It provides a general revenue by means of the tariff and other agencies, it formulates the restrictions that may be placed on immigration, and maintains our national quarantine, by means of which we are protected from the introduction of disease. It has a public health service which has done good work not only in averting epidemics, such as that of yellow fever in New Orleans a few years ago, but has instituted scientific research, which promises to be of the greatest value to preventive medicine; and recently our government has provided for a public health service and research laboratory in which work of the highest character and of the most practical value has been done. It is to be hoped that the present laboratory of hygiene will be wisely and liberally provided for, and that it will grow into a tree the fruit of which will benefit all parts of the earth.

The best government is that which gives to its citizens, equally and without distinction, the greatest length of life under the most favorable conditions for physical, mental, and moral growth. Man is a product of evolution, and his ideas of right and wrong, of justice and injustice, of his

privileges and duties, are undergoing an evolutionary process. No stronger proof of this can be found elsewhere than in this Congress, to which men from all parts of the civilized world have come for the purpose of consulting together on the best and most efficient means of restricting that disease which, through all historical time, has been man's most relentless foe in his attempts to improve his condition. We of the present generation have seen great things in the development of our race, and none greater or more hopeful than man's release from the superstition that disease is inevitable, and that it falls upon us as a scourge. The release from this bondage is as yet only partial, but if the world moves on in the way that it has started along this line, the historian of the future will have no difficulty in proving that the citizens of this country at the beginning of the twentieth century were possessed of but little knowledge, and that they imperfectly applied that little. He will tell his readers, for instance, that out of a population of some eighty millions, from 150,000 to 200,000 die annually of tuberculosis—a preventable disease; that our national government in its capital city, under the immediate supervision of Congress, did not make until 1908 provision for a municipal laboratory in which this disease could be definitely and certainly recognized among its citizens; that in this same city, up to the time mentioned, our government permitted a considerable number of inhabitants to live and breed tuberculosis and other diseases in the miserable quarters so well described by Kober; that in this same city the greater part of the first decennium of the twentieth century had passed before any efficient move was made to protect its citizens against infection from the tubercle or other harmful bacteria, through the milk-supply or other foods; that there was no registration of tubercular individuals in the District of Columbia up to this time; that there was no adequate provision for the care of those hopelessly infected with this disease, nor for the arrest of the disease in those less seriously infected; that there was no national control or regulation of the sanitary conditions prevailing on the great interstate lines of transportation; that every visitor to the national capitol from near and from afar ran the risk of infection alike in the day coach and in the inartistic, overcrowded, overfurnished, and often filthy and possibly infected sleeping cars; that in this same city the industrious poor were compelled to live and work under conditions that favor infection with the tubercle bacillus, and that the shiftless, careless, indifferent, and ignorant were permitted not only to live under the conditions that breed the infection, but to scatter it after they have acquired it; that up to the year 1908 our national health service had not been raised to the dignity of a bureau, that its authority and facilities for practical work were too limited and circumscribed, and that the allowance granted this service for research and investigation was a mere pittance. These and many other things along the same line the historian

of the future may bring forward to show that our civilization is, after all, a thinly veneered form of barbarism.

Please do not understand from what I have said that I am a pessimist, for such I surely am not, but we must see and appreciate our weakness if we are to relieve ourselves of it and grow stronger. This crusade against tuberculosis is the greatest work that man has so far attempted. We of this generation are starting it, and those who come after us will, we hope, complete it. I certainly believe that the time will come when tuberculosis will no longer curse the race. How soon this time will come it would be folly to predict, for that depends upon the intelligence and earnestness of the effort that is put into the work. The eradication of this disease is by no means solely the medical man's problem; it demands the combined intelligence and labor of all men who are interested in the welfare of the race, and the individual who regards it with indifference should find no place in our legislative halls, either national or State. To take the life of a fellow-man wilfully or maliciously is murder—the greatest of all crimes; to do so through ignorance or carelessness is manslaughter. In effect it is the same as murder, although in guilt it may be less heinous. The great majority of deaths from tuberculosis are due to manslaughter, and this fact should be recognized. The man who carelessly or ignorantly expectorates infected sputum, which, after drying, may be inhaled and may infect another, is guilty of manslaughter. The same is true of the dairyman who sells infected milk, or of the owner who lets an infected house. It is essential that we recognize these truths before we can be successful in our crusade against tuberculosis. The man who would put arsenic in milk or drinking-water would be regarded by the law as either a criminal or a lunatic, and in either case he would be so dealt with that he could not repeat this offense. The man who sells milk or other food infected with the tubercle bacillus or other disease-producing germs is distributing a more deadly poison than arsenic, and he should be forbidden the continuance of such a practice. We need wise laws in order to restrict and eradicate tuberculosis, and their adoption and enforcement are sure to come as soon as the mass of the people see the matter in the true light.

Among the more important things that our national government should do in the near future I may mention the following:

1. The authority, scope of work, and facilities for the accomplishment of good possessed by our public health service should be amplified.

2. While the last few years have seen a marked improvement in the inspection of immigrants to this country, this supervision should be made even more stringent, and the disease should be kept from our shores.

3. The national government should formulate and enforce regulations for interstate transportation lines for the protection of travelers against

infection. Quite properly, our national government has taken steps to control freight rates and otherwise regulate railroads and their charges, for the public good; and this control should be extended so as to compel these roads to provide against possible infection to travelers from the tubercle or any other harmful bacillus.

4. Our national government should take more stringent measures against the sale of infected food. The pure food law enacted in 1906 is a step in the right direction, but it is imperfect, both *per se* and in the provisions for its administration and enforcement. We have no means of knowing to what extent meat and dairy products consumed in this country are infected with the tubercle bacillus, and there is no reasonable comparison between the effects of this infection and the injury that may be done by a fraction of one per cent. of some preservative in food. Surely we are "straining at gnats and swallowing camels"—though this does not mean that there is any necessity of swallowing either the gnats or the camels.

5. The government that permits any individual or combination of individuals to secure a monopoly of any necessity of life, be it food, clothing, building material, fuel, light, or what not, and place an unreasonable price upon such material, is neither wise, just, nor humane. Those of us who have to do with the care and treatment of the tubercular poor know that insufficiency of nutritious food and improper housing are to-day, in this land of plenty, important factors in the development and spread of this disease.

6. Our national government should make of this, its residential city and capital, a sanitary model, and this should be demonstrated by the restriction and eradication not only of tuberculosis, but of all other preventable diseases. The vital statistics show how far this city is unlike such a model at present.

7. The Army, Navy, and Public Health Service have already demonstrated their intelligent and practical interest in this crusade against tuberculosis by the establishment and conduct of special sanatoriums in the west for the care of the tubercular in these services, and this good example should be followed and amplified, and there should be here, in the District of Columbia, not only one, but several, model institutions for the care and treatment of both incipient and advanced cases of tuberculosis. The control of dairy products and the protection of all food against infection should be demonstrated in this city, which, with its high death-rate from tuberculosis, offers excellent opportunity to those who control its affairs to show that they are worthy of the positions they hold.

8. The excellent work already done in the Hygienic Laboratory of the Public Health and Marine Hospital Service has demonstrated the wisdom of its establishment and the intelligence with which it has been administered.

Its facilities should be greatly increased and the promotion of investigational work should be encouraged.

These are some of the more obvious lines along which our general government should move for the good of the people. There are many other things that will need to be done in time, and possibly some that I have not mentioned should have precedence over those given.

Our State governments should place tuberculosis on the list of diseases dangerous to the public health, require that all cases be reported, and the local health authorities should see that the disease is not disseminated. I do not think that any medical man holds that the homes of the tubercular should be placarded or quarantined, but the tubercular individual should be minutely and carefully instructed as to the care that he must take with his excretions, in order that he may not transmit the disease to others, and there is no other place where such instructions can be better given than in properly equipped and wisely managed sanatoriums. The combination of providing suitable homes, schools of instruction or sanatoriums for the tubercular, with attempts at reforestation, as has been done in Pennsylvania, is interesting and apparently sensible. State boards of health should be removed from all political control, and should be well sustained, and when these things are done, they may accomplish much by acting in the capacity of advisors and instructors of the public. Each State should maintain, preferably at its university, a research laboratory of hygiene, as well as a laboratory for the practical examination of sputum, drinking-water, food, etc.

Much good can be done by the State antituberculosis associations, which should reach every individual in the country within a few years. There is a great field for preaching the gospel of health, and to show that if man is to be free from the shackles that disease has placed upon him he is to do so by his own intelligent exertions.

Municipal governments must provide hospitals and sanatoriums for their incurable cases of tuberculosis. In every city there should be one or more dispensaries, and no one suffering from tuberculosis should be permitted to go without the care and attention demanded by the enlightened sympathy which should pervade all people.

Debers del Gobierno General en la Restricción de la Tuberculosis.—(Vaughan.)

Los Gobiernos se forman para asegurar la propiedad y vida de sus ciudadanos. El Gobierno protege la propiedad y vida de sus cuidadanos contra los enemigos extrangeros. Los ciudadanos confian su propiedad al comercio del mundo; sus buques visitan y dacen comercio en cualquier puerto de la

tierra, y su mercancía está segura en cualquier país civilizado. En su tierra él está libre de ataque de aquellos que pertenecen á otros países, y hasta tanto se comporte bien puede viajar al rededor del mundo sabiendo que el fuerte brazo de su gobierno y las leyes de la equidad que prevalecen entre las naciones, le dan seguridad de propiedad y vida. En su hogar está protegido contra la ilegalidad de su propio país, y el mejor gobierno es aquel que imparte justicia y equidad imparcialmente entre sus ciudadanos, sin descriminación en favor de clase ó individuo. El gobierno mantiene una armada para la protección de la propiedad y vidas de sus ciudadanos contro posibles enemios estranjeros, y para la supresión de huelgas y rebeliones entre sus propios límites. En los Estados Unidos de America el gobierno general regula el comercio entre los estados y se esfuerza en proteger los ciudadanos de un estado contra el fraude que puede atentarse por aquellos que viven ó hacen negocio en otres estados. Todo esto es propio y discreto, y el gobierno que haga menos que eso es un fracaso y la continuación de su existencia no puede justificarse; pero en esta edad de luz un gobierno debe hacer mas de eso. La Ciencia ha demostrado que las infermedades son uno de los más destructivos agentes de la propiedad y la vida, y que muchas enfermedades pueden ser prevenidas. Por consecuencia, el gobierno que no haga todo esfuerzo posible para proteger la propiedad y vida de sus ciudadanos contra las enfermedades no está cumpliendo su deber. La tuberculosis es la más fuerte destructora de propiedad y vidas. De 150,000 á 200,000 ciudadanos de este país mueren anualmente de está emfermadad, y las pérdidas financieras que se derivan de la enfermadad y muerte por está causa están fuera de todo cálculo; esto sin decir nada de la deterioración física, mental y moral que acompaña á esta enfermedad. Es mi propósito en este escrito señalar algunos procederes que nuestro gobierno general debe llevar á efecto en la supresión y extinción de la tuberculosis. Aunque las investigaciones de Villemin y otros han demostrado fuera de duda la naturaleza infecciosa de la tuberculosis, y de la penosa labor de Koch resultó el descubrimiento del agente activo é infeccioso, mucho hay todavía que hacer en sentido científico antes que esta enfermedad pueda ser extinguida, y obtener éxito en está cruzada contra está enfermadad así como el éxito en toda otra empresa, depende del conocimiento de los pormenores. Someramente enumerare algunas de las cosas que, en mi opinión, nuestro gobierno general debe hacer.

La relación de la tuberculosis humana y la bovina, la de las aves y los peces, y también la relación entre los bacilos merece más exato y completo estudio. Debe investigarse la posibilidad de modificar el bacilo por el pase á traves de animales más ó ménos resistentes. Son materia de importancia, la influencia de la luz, el abundante abastecimiento de aire ó la restricción de éste, la influencia del ejercicio, de las diferentes clases de alimento en el progreso de la enfermedad en animales tuberculosos. No ha sido finalmente

decidido todavía el asunto de la herencia en la transmisión de la tuberculosis, y su importancia en el atento de acabar con la enfermedad es grande. Deben los tuberculosos engendrar ó tener niños, y si él ó ella los tienen, cual es el efecto en el curso de la enfermedad en los padres, y cual el efecto en la prole? Deben investigarse y presentarse al pueblo los hechos hasta donde se puedan averiguar. El problema de la inmunidad y la detención de la enfermedad debe proseguirse sin descanso. La influencia de la raza, edad, sexo y condition de vida en la susceptibilidad de infección y en el progreso de la enfermedad es algo en lo que debe adquirirse todo posible informe.

Es materia importante la química del bacilo y sus productos germinales. Estos cuerpos deben estudiarse tanto químicamente como toxicologicamente. Esto solo constituye un ramo que puede ocupar muchos investigadores por años, y que solo puede llevarse á cabo por medio de extenso y costoso equipo.

La desinfección de las casas ocupadas por tuberculosos es asunto práctico de gran importancia, así como tambien lo es el de los medios por los cuales el viajero pueda él mismo protegerse mejor contra la infección.

Todos estos y muchos otros problemas que deben resolverse si la raza quiere librarse de esta enfermedad, pueden ser realizados mejor por investigadores trabajandos en laboratorios construidos, equipados y sostenidos por el gobierno general, y el goberino debe entrar en este trabajo y llevarlo á cabo, por las siguientes razones: (1) Ello es por el bienstar del público. (2) Exige el tiempo la atención de hombres que deben estar libres de la necesidad de hacer otra cosa. (3) Requerá tales gastos que puede hacerse mejor bajo reglas oficiales y á expensas del gobierno.

Die Pflichten der Regierung in der Einschränkung der Tuberkulose.—(VAUGHAN.)

Die Regierungen sind eingesetzt für die Sicherheit des Eigentums und des Lebens ihrer Bürger. Die Regierung schützt das Eigentum und das Leben ihrer Bürger gegen fremde Angriffe. Der Bürger vertraut sein Eigentum dem Welthandel. Seine Schiffe dürfen anlegen und Handel treiben in jedem Hafen der Erde und seine Güter sind in irgend einem civilisirten Lande sicher. Zu Hause ist er frei von der Gefahr, dass diese von anderen Nationen angegriffen werden und, solange er sich ordentlich benimmt, kann er um die Welt reisen, wissend, dass der starke Arm seiner eigenen Regierung und das Völkerrecht ihm Sicherheit für Eigentum und Leben geben. Zu Hause ist er gegen die Gesetzlosen seines eigenen Landes geschützt, und die beste Regierung ist jene, welche Gerechtigkeit und Gleichheit all ihren Bürgern zuteil werden lässt, ohne Ansehen der Person und des Standes. Die Regierung unterhält eine Flotte zum Schutze des Eigentums und Lebens ihrer Bürger gegen fremde Angriffe und zur Unterdrückung von Aufruhr und

Rebellion innerhalb ihrer eigenen Grenzen. In den Vereinigten Staaten von Amerika regulirt die Gemeinregierung den Binnenhandel und bemüht sich, die Bürger des einen Staates gegen Betrügereien zu schützen, die von solchen versucht werden könnten, die in anderen Staaten leben oder geschäftlich tätig sind. All dies ist in Ordnung und weise, und die Regierung die weniger als dies tut, ist nichts wert und ihr Fortbestehen kann durch nichts gerechtfertigt werden; aber in diesem erleuchteten Zeitalter sollte eine Regierung mehr als dies tun. Die Wissenschaft hat gezeigt, dass Krankheiten eine der am meisten zerstörenden von Eigentum und Leben sind und dass viele Krankheiten verhindert werden können; infolgedessen tut eine Regierung, die nicht alle möglichen Anstrengungen macht, das Eigentum und Leben ihrer Bürger zu schützen, nicht ihre Pflicht. Tuberkulose wirkt höchst zerstörend auf beides, Eigentum und Leben. Es sterben jährlich 150,000 bis 200,000 Bürger dieses Landes an dieser Krankheit, und der finanzielle Verlust durch Krankheit und Tod von dieser Ursache ist unter jeder Berechnung, nicht zu sprechen von der physischen, geistigen und moralischen Verschlimmerung, die diese Krankheit begleitet.

Meine Absicht in diesem Vortrage ist, auf einige Dinge hinzuweisen, die unsere Gemeinregierung annehmen und durchführen sollte, um Tuberkulose zu unterdrücken und auszurotten. Während die Studien von Villemin und anderen ohne jeden Zweifel die infective Natur der Tuberkulose bewiesen, und die mühsamen Arbeiten Kochs in der Entdeckung des activen Infectionserregers gipfelten, ist noch viel in wissenschaftlicher Arbeit zu tun um diese Krankheit auszurotten, und der Erfolg in diesem Kreuzzuge gegen die Krankheit hängt, sowie der Erfolg in allen grossen Unternehmungen, von der genauen Kenntnis der Details ab. Ich will in Kürze einige der Dinge aufzählen, die unsere Gemeinregierung tun sollte.

Die Beziehungen der menschlichen Tuberkulose zu der der Rinder, Vögel und Fische, auch die Beziehungen des Bazillus, verdienen gründlicheres und genaueres Studium. Die Möglichkeit, dass der Bazillus durch die Passage durch mehr oder weniger widerstandsfähige Tiere modifizirt wird, sollte ausgeforscht werden. Die Einflüsse von Licht, von zurückgehaltener oder reichlicher Luftversorgung, von Körperbewegung, von verschiedenen Arten von Nahrung auf den Fortschritt der Krankheit bei tuberkulösen Tieren sind Dinge von Wichtigkeit. Die Frage der Erblichkeit in der Übertragung der Tuberkulose ist auf keinen Fall definitiv erledigt und ihre Wichtigkeit in den Versuchen, die Krankheit auszurotten, ist gross. Darf das tuberkulöse Individuum Kinder erzeugen oder gebären? Und sollte er oder sie es tun, was ist die Wirkung des Krankheitsverlaufes auf die Eltern und was die Wirkung auf die Nachkommenschaft?

Die Tatsachen können sicher herausgefunden werden, sollten kennen gelernt und dem Volke vorgelegt werden. Das Problem der Immunität

und der Unterdrückung der Krankheit sollte bis zur Erschöpfung verfolgt werden. Die Einflüsse von Rasse, Alter, Geschlecht und Lebensbedingungen auf Empfänglichkeit für Infektion und auf den Fortschritt der Krankheit sind einigermassen im Zusammenhange mit allen möglichen Informationen, die eingeholt werden sollten.

Die Chemie des Bazillus und der Spaltungsprodukte ist eine wichtige Sache. Diese Stoffe sollten sowohl chemisch als auch toxikologisch studiert werden. Dies allein würde eine Tabellirung zustande bringen, welche viele Forscher auf Jahre hinaus beschäftigen würde, und es kann nur durch ausgedehnte und teure Einrichtungen durchgeführt werden.

Die Desinfection von Häusern, welche von Schwindsüchtigen besetzt sind, ist eine praktische Sache von grosser Wichtigkeit, und dasselbe mag von der Art und Weise gelten, durch welche sich der Reisende am besten gegen Ansteckung schützt.

Alle diese und andere Probleme, welche gelöst werden müssen, wenn die Rasse sich von dieser Krankheit befreien soll, können am besten durchgeführt werden durch Forscher, die in Laboratorien arbeiten, welche durch die Gemeinregierung erbaut, eingerichtet und erhalten werden, und die Regierung sollte daran gehen und dies Werk aus folgenden Gründen in Angriff nehmen: (1) Es wird für die öffentliche Wohlfahrt sein. (2) Wird es die Zeit und Aufmerksamkeit von Männern in Anspruch nehmen, welche von der Notwendigkeit, anderes zu tun, befreit sein sollten. (3) Es wird solche Ausgaben erfordern, dass es am besten unter speziellen, officiellen Bestimmungen und auf Regierungskosten getan werden kann.

Dr. Juan J. Ulloa, official delegate of Costa Rica, offered a resolution recommending that "the States and central governments enact laws for the obligatory notification, by physicians, of all cases of tuberculosis coming under medical observation, in order that health officers may put in operation adequate measures to prevent the spread of tuberculosis from all discovered foci." This resolution was referred to a special committee, namely, Dr. F. Montizambert, of Canada, Dr. F. Helm, of Germany, Dr. Juan J. Ulloa, of Costa Rica, Dr. Samuel G. Dixon, of Pennsylvania, U. S. A., and Dr. C. O. Probst, of Ohio, U. S. A.

The Section then adjourned to meet in joint session with Section V, and discuss:

THE LEGITIMATE EXERCISE OF POLICE POWER IN MATTERS OF PUBLIC HEALTH.

(See vol. iii, page 230.)

SECTION VI.

State and Municipal Control of Tuberculosis (*Continued*).

FOURTH SESSION.

Wednesday morning, September 30, 1908.

THE ADMINISTRATIVE CONTROL OF TUBERCULOSIS.

Section VI was called to order by the President, Surgeon-General Walter Wyman, on Wednesday morning, September 30th, at half-past nine o'clock.

THE ADMINISTRATIVE CONTROL OF TUBERCULOSIS IN NEW YORK CITY.

By Herman M. Biggs, M.D.,
General Medical Officer, Department of Health, City of New York.

Inaugurated as far back as 1894, the antituberculosis work of the New York City Health Department has always been a model for the health authorities of other cities, both here and abroad. The work now being carried on had its inception in a report made in 1887 by Drs. T. Mitchell Prudden, Herman M. Biggs, and H. P. Loomis, constituting a special committee appointed by the then Health Commissioner of New York City, Dr. Joseph D. Bryant. This report recommended that tuberculosis be classified as a communicable, infectious disease, and that the sanitary authorities formulate and enforce regulations for its prevention. These propositions are now so self-evident that it is surprising to know that they aroused wide-spread opposition, not only among the laity, but even among a large part of the medical profession. The Board of Health, therefore, instead of at once adopting measures to control the disease, began an extensive educational campaign, and collected valuable data covering the distribution of the disease.

By 1894 the time was ripe for inaugurating the tuberculosis campaign. The Board of Health classed pulmonary tuberculosis as an infectious, communicable disease, and required all hospitals and public institutions to report all cases under their charge. At the same time private physicians were asked to do so. In order to aid physicians in reaching an early and definite diagnosis, the Board of Health established a diagnosis laboratory, where suspected sputum was examined for physicians free of charge. The only stipulation made was that the physician should furnish the name and address of the patient. In this way many cases were notified to the authorities which could otherwise not have come to the knowledge of the health authorities.

After a time it was realized that the work of the Board of Health in no way interfered with the work of the private physicians, and in no way infringed on any rights of the individual. Physicians became more willing to coöperate, so that by 1897 the Board of Health was able to adopt a regulation requiring even private physicians to report their tuberculosis cases to the health authorities.

At the present time there is no other city in the world in which the health authorities have so thoroughly organized the tuberculosis campaign as in the city of New York. The work now being done may be summarized as follows:

1. *Compulsory Notification.*—This is absolutely essential, and constitutes the basis of the entire plan. The reported cases fall into two large groups—namely, those reported by private physicians as under their care, and those reported as not under such supervision. If the consumptive is regularly under the care of a private physician, and if the latter undertakes to see that the necessary precautions are taken to prevent the transmission of the disease to others, no further action is taken by the Board of Health. The very fact that the physician has reported the case is regarded as evidence that the physician is doing his share. If, however, the consumptive is without a home, or living in a lodging-house, or in a poorly furnished room, or in a tenement-house, and is not under the care of a private physician, or if the patient is receiving charitable medical advice through a dispensary or some public institution, then all objection to the visitation and the supervision of this case by the Health Department is removed.

2. Facilities for the free bacteriological examination of sputum, to aid in the early and definite diagnosis of pulmonary tuberculosis. In New York such facilities were provided as early as 1894, and have proved an excellent means of securing notification. It is curious to see how many physicians originally reluctant to directly report their cases would not hesitate to avail themselves of these laboratory facilities, furnishing patient's name, address, etc., as required.

In New York city, in order to make the transmission of specimens of sputum to the laboratory as convenient for the attending physician as pos-

sible, depots have been established in a large number of drug-stores, where sputum bottles, blanks, etc., supplied by the Department of Health, may be obtained, and where the specimen can be left to be called for by the laboratory's messenger.

3. Free disinfection by the health authorities of rooms or apartments which have been vacated by consumptives, either by death or removal; issuing orders for renovating the apartment, where necessary. The cleaning or renovating is done by the owner or occupant of the apartment under an order from the Board of Health. The rooms are disinfected free of charge with formaldehyd gas, some of the goods are removed by the department wagons, disinfected by steam, and returned the following day, while certain infected articles which cannot be properly disinfected are destroyed.

4. Persons suffering from pulmonary tuberculosis, and not under the care of a private physician, are visited in their homes by trained nurses, who give careful verbal instruction, leave printed circulars in the native tongue of the patient, and secure complete data concerning the social condition and hygienic surroundings of the patient. The case may also be visited by a trained medical inspector, who reports whether in his judgment the case ought to be left in its present surroundings or removed to a hospital or sanatorium. If the patient constitutes a menace to others, his removal to an institution should be brought about, by force, if necessary.

5. When for any reason it is undesirable or impossible to remove a patient not under the regular care of a private physician, provision is made for having such patients visited repeatedly in their homes by trained nurses or by physicians.

6. Provision of suitable relief of various kinds for the consumptive and for his family. In New York city milk and eggs have been supplied through the special tuberculosis dispensaries. Financial and other assistance has been given to the consumptive and his family by the various diet kitchens, charitable institutions, etc.

7. The health authorities in New York city provide three classes of institutions for the care of consumptives:

(*a*) Polyclinics designed for the supervision and treatment of ambulatory cases. These at the same time act as clearing-houses to which cases may be sent for examination, and from which they may be referred to the various institutions for which the particular case is adapted. All cases remaining at home, under the supervision of a tuberculosis polyclinic, are regularly visited by a trained nurse. If able to do so, the patients are required to regularly visit the polyclinic.

(*b*) Hospitals for the care of advanced cases. At least one hospital or a pavilion of a hospital should be under the exclusive control of the health authorities to provide for the forced-in cases already mentioned. In addi-

tion to this, there should be sufficient hospital provision to care for such advanced cases among the indigent as cannot be properly cared for in their homes.

(*c*) Sanatoriums. The Department of Health of New York city has established a free sanatorium for the care of hopeful cases of pulmonary tuberculosis. The institution is planned on the inexpensive shack type, and the service of the institution is furnished almost entirely by the patients. The ratio of non-tuberculous employees to patients is as about 1 to 10. Economical but efficient administration is of prime importance.

8. Educational measures. These are of the highest importance. In New York city this feature of the campaign is attended by difficulties arising from the polyglot character of the population. Hundreds of thousands of circulars have been printed in almost a score of languages and scattered widely among the people. The public press has been called in to aid, exhibitions have been held, illustrated lectures have been given, and important work has been done through the Department of Education, both in the schools and in the lecture courses under its auspices.

9. The health authorities have issued and enforced regulations concerning consumptives in public institutions.

10. Regulations have been enacted and partly enforced prohibiting spitting in public places. This has already markedly diminished this filthy habit, and has done much to educate the public concerning the danger arising from the careless disposal of sputum.

11. Inspection of the inmates of lodging-houses and house-to-house visitation in the poorest tenement-house district. In a large city this is quite necessary, a fair number of cases of tuberculosis being thus discovered.

12. Other measures included in the campaign as carried out in New York city are:

(*a*) Taking a semi-annual census of available beds for consumptives, and of the cases at that time under treatment in public institutions in the city.

(*b*) Requesting physicians once a year by letter to give information concerning any and every patient reported by them, and whether the same is still under his care.

(*c*) Supplying sanitary cuspidors to poor patients and to various charitable societies for free distribution.

(*d*) Supplying large numbers of circulars of information printed in various languages to charitable organizations, labor unions, and other societies.

(*e*) Supplying simple, concise circulars to all the school children through the Department of Education.

(*f*) Plotting on large-scale maps (showing every house in the city) all cases of tuberculosis, thereby enabling the health authorities to discover large centers of infection.

(*g*) Attempting to secure the condemnation and purchase by the city of several areas in the tenement-house districts in which tuberculosis has been particularly prevalent, and having the areas laid out in small parks.

The feasibility of the above program is indicated by the fact that practically the entire plan is now in operation in New York city. What opposition there formerly was to the plan has disappeared as time has gone on, experience having shown that most of the objections were based on a misconception of what was to be done. Certainly, at the present time, there is hearty approval on the part of the majority of the medical profession. To the writer it seems that what has been done in New York can more easily be done elsewhere, where the population is not so polyglot. The reduction in the tuberculosis death-rate in New York city would not have been nearly as great as it has been if the determined campaign above outlined had not been waged. With a continuation of this campaign, we may confidently expect still further material reductions in the death-rate from tuberculosis.

DIE ANZEIGEPFLICHT BEI MENSCHLICHER TUBERKULOSE.

Von Regierungsrat Dr. Hamel,
Mitglied des kaiserlichen Gesundheitsamtes in Berlin.

Vorbedingung eines jeden Kampfes ist, dass man den Feind und die Stärke seines Aufenthaltes kennt. Dies gilt auch vom Kampfe gegen die Tuberkulose. Es liegt auf der Hand, dass die uns gegen die Tuberkulose zur Verfügung stehenden Kampfesmittel nur zum Teil in Kraft treten können, wenn wir über Anzahl und Verteilung der Tuberkulosefälle nicht genügend orientiert sind. So wird man namentlich neuerdings auch die von Robert Koch betonte Massnahme, die Kranken in ihrem Heim nach Möglichkeit ungefährlich für ihre Umgebung zu machen, nun doch, wo die Krankheitsfälle regelmässig zur Kenntnis der Gesundheitsbehörden gelangen, zu durchgreifender Wirksamkeit bringen können.

Das zuverlässigste Mittel, die Fälle von Tuberkulose in ausreichender Weise ausfindig zu machen, ist aber zweifellos die pflichtmässige Anzeige. Jede andere Ermittlungsweise, auch diejenige der freiwilligen Anzeige, wird mehr oder weniger lückenhaft bleiben. In dieser Erkenntnis haben denn auch die Mehrzahl der Kulturstaaten bereits eine pflichtgemässe Anzeige für Tuberkulosefälle zur Einführung gebracht. Es gilt dies in Europa, ausser für den grösseren Teil des Deutschen Reiches (nämlich Preussen, Sachsen, Baden, Oldenburg, Braunschweig und Sachsen-Altenburg), für Oesterreich und Ungarn, Italien, die Schweiz, Dänemark, Schweden, Norwegen, Spanien und Portugal. Hier in Amerika besteht eine pflichtmässige Anzeige in der Mehrzahl der grossen Städte der Vereinigten Staaten, ferner in Brasilien und ausserdem besteht sie in Queensland in Australien. Eine freiwillige Anzeige ist namentlich in mehreren Städten Grossbrittanniens und Frankreich eingeführt. Danach darf die Zweckmässigkeit der Anzeige bei der Tuberkulose heute im allgemeinen als anerkannt gelten.

Betrachtet man nun des näheren die für die verschiedenen Staaten und Städte ergangenen Vorschriften, so zeigt sich, dass der Umfang, in welchem die Anzeige für Tuberkulose vorgeschrieben ist, in den verschiedenen Ländern ein recht verschiedener ist. Einige Staaten beschränken sich darauf, nur die Todesfälle an Lungen- oder Kehlkopftuberkulose der Anzeige zu unter-

werfen; in anderen unterliegen ausserdem die Erkrankungsfälle an offener Lungen- oder Kehlkopftuberkulose, sei es im allgemeinen oder unter bestimmten Bedingungen der Anzeigepflicht. Wieder andere gehen so weit, jede Erkrankung an Tuberkulose, gleichviel welches Organ davon betroffen ist, also auch die Fälle von sogenannter chirurgischer Tuberkulose für anzeigepflichtig zu erklären.

Fragt man sich, welche die Ursachen einer so verschiedenen Handhabung der Anzeigepflicht sind, so lehrt zunächst die Erfahrung, dass fast überall, wo die Anzeigepflicht für Tuberkulose zur Einführung gebracht wurde, dies nicht ohne Ueberwindung gewisser Widerstände möglich war. Sie sind in erster Linie der Befürchtung entsprungen, dass die praktische Durchführung der Anzeigepflicht nicht ohne gewisse Härten und ohne wesentliche wirtschaftliche Nachteile für die Tuberkulösen selbst, wie auch für andere Kreise der Bevölkerung sich werde bewirken lassen. Dass solche mit der Anzeigepflicht bei Tuberkulose in der Tat in gewissem Umfange verbunden sein können, wird sich nicht läugnen lassen, und es liegt auf der Hand, dass je nach der wirtschaftlichen Gliederung der Nationen die Bedeutung dieser Schädigungen in verschiedenem Masse empfunden und beurteilt werden muss.

Im Uebrigen aber wird diejenige Nation am ehesten geneigt sein, die aus der Anzeigepflicht möglicherweise entspringenden Unannehmlichkeiten auf sich zu nehmen, bei der das Verständnis für die Bedeutung hygienischer Massnahmen und der dem Einzelnen hieraus erwachsenden Pflichten am meisten ausgebildet ist. In Betracht kommt allerdings auch der Umstand, dass einige Nationen gegenüber behördlichen Zwangsmassnahmen auf dem Gebiete der Krankheitsbekämpfung eine gewisse grundsätzliche Abneigung zeigen.

Unter diesen Umständen wird man auf eine einheitliche internationale Regelung der Anzeigepflicht in absehbarer Zeit kaum rechnen dürfen.

Immerhin dürfte in ärztlichen Kreisen über eines schon heute eine einheitliche Auffassung bestehen, nämlich darüber, dass zum mindesten alle diejenigen Tuberkulosefälle der Anzeige unterliegen müssen, von denen eine weitere Ausbreitung der Tuberkulose in besonderem Masse zu befürchten ist.

Hierunter entfallen zunächst die Todesfälle an Lungen- oder Kehlkopftuberkulose, damit die von den Verstorbenen vordem bewohnten Räume und die von ihnen benutzten Gegenstände einer gründlichen Desinfektion unterzogen werden können, sodann aber auch alle diejenigen Erkrankungen an offener Lungen- oder Kehlkopftuberkulose, in denen ein solcher Kranker seine Wohnung aufgibt oder seine eigene Umgebung in erheblichem Masse gefährdet. Denn die offenen Lungen- und Kehlkopftuberkulösen sind zweifellos weitaus die gefährlichsten Krankheitsfälle, wesentlich gefährlicher als die Tuberkuloseerkrankungen sonstiger Organe, bei welchen, wie z. B. bei der Drüsen-, Knochen- und Gelenktuberkulose, der Darm-, Nieren- und Hauttuberkulose die Möglichkeit, die Krankheit zu übertragen, an sich eine

ziemlich beschränkte ist, während eine geschlossene Tuberkulose ja eine Gefahr für die Umgebung zunächst überhaupt nicht bedeutet. Diesen Verhältnissen trägt denn auch die von der internationalen Vereinigung gegen die Tuberkulose auf der VI. internationalen Tuberkulosekonferenz 1907 in Wien gefasste Resolution in entsprechender Weise Rechnung. Sie lautet: Anzeigepflicht ist für Todesfälle an Lungen- und Kehlkopftuberkulose und beim Wohnungswechsel von Tuberkulösen einzuführen. Als erstrebenswert wird daneben bezeichnet, dass für alle Erkrankungen an Lungen- oder Kehlkopftuberkulose allmählig die Anzeigepflicht zur Einführung gelange. Als weitestgehende Forderung ist also hier nur die Anzeige der Erkrankungen und Todesfälle an Lungen- oder Kehlkopftuberkulose in Aussicht genommen, während für die anderen Formen der Tuberkulose eine Anzeige nicht gefordert wird.

Was nun die Frage anbetrifft, wer zur Anzeige verpflichtet werden soll, so ist in dieser Hinsicht zunächst darauf hinzuweisen, dass es nicht genügt, nur den behandelnden Arzt zur Anzeige zur verpflichten, denn erfahrungsgemäss nehmen Kranke mit vorgeschrittener Tuberkulose ärztlichen Rat oft nur selten, vielfach auch überhaupt nicht mehr in Anspruch. Würde man daher nur den Arzt zur Anzeige verpflichten, so würde zweifellos nicht allein nur eine Anzahl von Todesfällen, sondern namentlich auch zahlreiche solche Fälle, in denen schwerkranke Tuberkulöse die Wohnung wechseln, gänzlich unbekannt bleiben. Man wird also neben den Aerzten auch noch solche Personen verpflichten müssen, als welche in erster Linie in Betracht kommen: Haushaltungsvorstände, Krankenpfleger, Leichenbeschauer, sowie diejenigen Personen, in deren Wohnung oder Behausung der betreffende Erkrankungs- oder Todesfall sich ereignet hat. Diesen nichtärztlichen Personen wird man hierbei eine Anzeigepflicht natürlich nur insoweit auferlegen können, als sie zur Feststellung von Tuberkulosefällen geeignet erscheinen.

Erweist sich in einem Staate oder Stadt eine Verpflichtung zur Anzeige nicht als durchführbar, so wird man die freiwillige Anzeige, gegebenenfalls unter Gewährung einer Entschädigung für jede Meldung als immerhin wertvollsten Ersatz begrüssen können. Ist wie z. B. in Deutschland die Krankenfürsorge in umfassender Weise gesetzlich geregelt, so wird man ausserdem die Organe der staatlichen Arbeiterversicherung in weitem Masse für die Ermittlung von Tuberkuloseerkrankungs- und Todesfällen nutzbar machen können. Nicht minder wertvoll dürften sich ferner die Auskunfts- und Fürsorgestellen für die Aufdeckung von Tuberkulosefällen erweisen, da sie ja bei den sie aufsuchenden Kranken alle in der Familie vorhandenen Krankheitsfälle festzustellen suchen. So hat mir Dr. Freund, der Direktor der Landesversicherungsanstalt Berlin erklärt, dass seiner Ueberzeugung nach in der Arbeiterbevölkerung Berlins kaum ein Krankheitsfall vorhanden sei, der nicht zur Kenntnis der Landesversicherungsanstalt oder einer der in

Berlin vorhandenen Fürsorgestellen gelangt und demzufolge in entsprechende Behandlung genommen wird.

Zweck der Anzeige soll, wie schon eingangs gesagt wurde, sein, die Gefahr einer weiteren Ausbreitung der Tuberkulose seitens der zur Kenntnis gebrachten Fälle nach Möglichkeit zu beseitigen. Dem entspricht aber andererseits, dass auch nur dort, wo ausreichende gesetzliche Handhaben bestehen, um nach erfolgter Anzeige wirksame Bekämpfungsmassnahmen, in erster Linie eine gründliche Desinfektion in Kraft treten zu lassen, die Einführung der Anzeigepflicht berechtigt erscheint. Nicht gerechtfertigt wäre es, sie etwa rein zu statistischen Zwecken zur Einführung zu bringen, denn diese Aufgabe kann auch auf andere Weise und ohne jede wirtschaftliche Beunruhigung der Bevölkerung in ausreichender Weise durchgeführt werden.

Notification of Human Tuberculosis.—(Hamel.)

1. Effective municipal measures for the prevention of human tuberculosis presuppose that cases of the disease are brought to the notice of the authorities.

2. In view of the fact that in most civilized countries provision is made for the reporting of tuberculous cases, the necessity of notification may be said to be generally admitted.

3. A study of the various regulations that have been enacted for the reporting of tuberculous cases shows very great differences in scope. Whereas, in some countries only cases of death from pulmonary or laryngeal tuberculosis are required to be reported, others have compulsory notification of all tuberculous diseases in every organ of the body.

4. These differences are chiefly explained by the general impression that harm would be done by extending compulsory notification to all cases of tuberculous disease. The extent to which notification is made compulsory depends on the hygienic sense of the nation.

5. Uniform international regulations for notification may therefore be expected in the near future.

6. In order successfully to combat the spread of tuberculosis it is necessary that compulsory notification apply, not only to all cases of death from pulmonary or laryngeal tuberculosis, but also to all cases of open tuberculosis of the lungs and larynx.

7. The Inner Council of the International Association for the Prevention of Tuberculosis, in a resolution passed at Vienna, in 1907, emphasized the desirability of gradually extending compulsory notification to all cases of tuberculous disease of the lungs and larynx.

8. Since patients with advanced tuberculosis rarely consult a physician, the heads of households and nurses should be obliged to report deaths from

open pulmonary or laryngeal tuberculosis, and also change of residence.

9. Where compulsory notification of tuberculous cases is found to be impracticable, voluntary notification should be introduced.

10. Supporting dispensaries for tuberculous patients, and the machinery of Government workmen's insurance, could be utilized for locating cases of tuberculosis.

Notificacion de los Casos de la Tuberculosis.—(HAMEL.)

1. Las medidas municipales efectivas para la prevencion de la tuberculosis humana, presupone que los casos de esta enfermedad deberan ser traidos al conocimiento de las autoridades.

2. La necesidad de la notificacion puede decirse es generalmente admitida.

3. El estudio de varias regulaciones para la notificacion de los casos de tuberculosis, demuestran una gran diferencia en los procedimietos; mientras que en algunos solamente se requiere la notificacion de las defunciones de los casos de tuberculosis, en otros existe una notificacion obligatoria de todas las enfermedades tuberculosis en cualquier parte que estas sean.

4. La diferencia se explica principalmente por el hecho de la creencia general de que se hace mas daño con la notificacion á los casos de tuberlosis. La extension de la notificacion obligatoria depende del sentido higienico de la nacion.

5. La notificacion por lo tanto es de esperarse en el futuro.

6. Es necesario que la notificacion obligatoria sea aplicada inmediatamente, no solamente de todos los casos de tuberculosis pulmonar o de la laringe, sino que tambien de todos los casos de lesiones abiertas de tuberculosis de los pulmones y de la laringe.

7. Ademas de esto, el Concilio Interior de la Asociacion Internacional en una resolucion hecha en Viena, en 1907, se hace ver la necesidad de extender la notificacion obligatoria de todos los casos de tuberculosis de la laringe y de los pulmones.

8. Puesto que es un hecho bien sabido que, pacientes en el periodo avanzado de la tuberculosis raramente consultan un medico, otras personas tales como las matronas de las casas o las enfermeras, debieran estar obligadas a notificar los casos de defunciones consecuentes a la tuberculosis de los pulmones o de la laringe con lesiones abiertas de la afeccion, y tambien notificar el cambio de residencia de estos pacientes si tal fuere el caso.

9. En donde la notificacion obligatoria fuere impracticable, la notificacion voluntaria debiera ser introducida.

10. Dispensarios gratis para los pacientes tuberculosos, e instituciones

del gobierno para el aseguro de los obreros, pudiera ser utilizable para averiguar los casos de tuberculosis.

Notification dans la tuberculose humaine.—(HAMEL.)

1. Les mesures municipales contre la tuberculose humaine présupposent, pour être effectives, que les autorités seront notifiés de l'existence des cas.

2. La necessité de notification peut être généralement admise.

3. L'étude des différentes régulations faites pour rapporter les cas tuberculeux montre de très grandes différences d'étendue. Dans quelques pays on rapporte seulement les morts de la tuberculose pulmonaire ou laryngéale; dans d'autres il y a notification obligatoire de toutes les maladies tuberculeuses dans tous les organes du corps.

4. Ces différences s'expliquent principalement par l'opinion général que l'on ferait du mal en étendant la notification obligatoire à tous les cas de la tuberculose. Le degré auquel on peut porter la notification obligatoire dépend des sentiments hygiéniques de la nation.

5. On peut donc s'attendre à des régulations internationales et uniformes pour la notification dans le futur non éloigné.

6. Pour combattre avec succès la dissémination de la tuberculose il faut que la notification obligatoire soit immédiate, dans tous les cas de la tuberculose ouverte des poumons et du larynx.

7. D'ailleurs, le conseil intérieur de l'association internationale pour l'émpêchement de la tuberculose, dans une résolution faite à Vienne, en 1907, appuyait sur l'avantage d'étendre peu à peu la notification obligatoire à tous les cas de la tuberculose pulmonaire et laryngéale.

8. Puisque tout le monde sait que les tuberculeux avancés ne consulte presque jamais un médecin, il faudrait contraindre d'autres personnes, comme les chefs de famille et les garde-malade de rapporter les morts de la tuberculose ouverte pulmonaire ou laryngéale et aussi changements de logis des malades de ce type.

9. Si l'on trouve que la notification obligatoire des cas tuberculeux est impraticable, l'on pouvrait introduire la notification à volonté.

10. Ou pouvrait aussi se servir du mécanisme de l'assurance des ouvriers par le Gouvernement, pour localiser les cas de la tuberculose.

THE STATUTORY CONTROL OF TUBERCULOSIS, WITH SPECIAL REFERENCE TO THE MARYLAND SYSTEM.

By Marshall Langton Price, M.D.,
Baltimore, Maryland.

The statutory control of tuberculosis is the latest of the weapons now being employed in the fight against tuberculosis. In the greater part of the world the usefulness and effectiveness of legislation may be said to be still on trial, as sufficient time has not yet elapsed for us to be able to assign a proper value to statutory control. It is, therefore, all the more important that we should first obtain accurate data concerning the application of legislation in the antituberculosis campaign, and draw definite conclusions as to its results.

All coördinated control of tuberculosis may be divided broadly into three heads. The first of these is the treatment of the sick. Prevention is, of course, secondary in this method of dealing with tuberculosis. The other methods deal with prevention proper, and, from a social standpoint, fall under two heads: first, public opinion, and, second, legislation. Under the broad heading of public opinion may be grouped the great bulk of the preventive work now being done throughout the world—in popular education, printed literature, general and individual instruction, tuberculosis exhibitions, and all the important propaganda conducted by associations, societies, and leagues banded together against the common enemy.

In order to prove the value of legislation against tuberculosis we must first show the necessity for it. Is public opinion alone capable of solving the tuberculosis problem? We must recognize at the start that public opinion is a powerful force—probably, when properly directed, the most powerful at our command in this campaign. Its greatest defects are its inconstancy and inequality.

The problem of tuberculosis is as large a one as any other problem in statesmanship, and permanent results in statesmanship have never been accomplished by the force of public opinion alone. The progress of the ship of State under public opinion is like that of a vessel in a storm—furious spurts of speed are succeeded by dead calms and adverse winds, during which the vessel may lose the ground it has gained. The ship of State directed

by the law sails under a steady wind, not making such rapid speed perhaps, but never deviating from its course, and eventually reaching its predestined goal. In effect, public opinion influences those acts that we would like to require our neighbors to perform, the law those that we are compelled to perform ourselves.

It is an unfortunate evidence of human nature that the fight against tuberculosis, like most other reforms, has begun everywhere at the wrong end. The early history of tuberculosis has been everywhere the history of the development of the sanatorium movement. This has not been so much the fault of the leaders in the campaign as the adverse force of public opinion. A cure makes a greater appeal to the public mind than prevention. The public mind prefers to deal with the concrete, rather than with the abstract, and the immediate and tangible possesses a greater attraction for the popular mind than the unknown and intangible future. The problems concerned in tuberculosis are relatively simple. It is only in the methods of meeting these problems that we find any difficulty. The elements of the problem are, first, a tuberculous person who is distributing a certain virus through channels not yet wholly understood to a second group of persons, the family, which includes all the persons in the same household with whom the patient lives, eats, and sleeps, and with whom he comes into intimate and prolonged contact; to a third group, the coworkers, with whom he is associated, though much less intimately, for probably a prolonged period; to a fourth group, also to be included among the casual contacts, associates and friends, and finally to a large and remote group, the general public. Experience has shown that tuberculosis, in the vast majority of cases, is contracted by exposure only after prolonged and intimate contact, and these conditions are practically present only in the family of a tuberculous person. We have, therefore, the *intensive* method of propagating tuberculosis found in the household and family, and of great importance, and the *extensive* method, applying to casual associates and the general public.

It is another commentary upon the general manner in which reforms are always commenced—wrong end foremost—that all the early legislation dealing with tuberculosis approached first this unimportant question of extensive propagation, applying to the general public, and, as a result of this, we have now upon the statute books and city codes of all our principal municipalities every kind and variety of antispitting laws and ordinances. We now recognize that these diffuse efforts have been productive of little effect, and that our efforts can best be directed almost exclusively to the *intensive* methods of propagation.

As soon as the question of prevention arises, we have no longer a sick individual, but a sick family. In order to make my meaning clear I will refer to this small group of individuals exposed to intensive infection as

the "tuberculous family," and to the household occupied by the patient as the "tuberculous domicile."

When our efforts are properly directed toward the "tuberculous family," we have three means at our disposal: First, the removal of the patient. This represents the preventive side of the "sanatorium problem." Second, the application of all the principles included in "public opinion" to the "tuberculous family." This includes the education and instruction of both the patient and the family. Third, measures of prevention in the household under statutory control.

When the source of infection is removed from the household, either by the removal of the patient or by his death, we still have another problem to consider, namely, the "tuberculous domicile." This problem is simple, and is met in only one way—by disinfection.

Disinfection is by no means a preventive panacea, as it concerns only what we may consider the *infective* side of tuberculosis and does not affect its communication by *contagion* or contact.

It is natural that, as the sanatorium system has been so long in vogue and is so firmly established, a large number of persons should look to the sanatorium as a means for solving the whole tuberculosis problem. To these persons it first seemed simple merely to discover the cases of tuberculosis and remove them to a hospital in the same manner as is done with cases of smallpox. An infectious disease that runs its course in two or three weeks is a very different problem to handle, however, from a disease having a duration of from three to five years. These rosy hopes soon died when it was discovered that only a very small percentage of the tuberculous population could or would receive sanatorium treatment.

Osler has estimated that 90 per cent. of persons with tuberculosis must be treated in their own homes, and I consider his estimate extremely liberal. Careful tabulation of the deaths occurring in Maryland has been made, and it has been found that the number dying in institutions of all classes has never exceeded 2 per cent. As the first position proved untenable, many of the preachers of the sanatorium doctrine now ascribe an exaggerated influence to the educational effect of sanatorium treatment. Too much stress should not be laid on this argument, for, as previously stated, the number of the tuberculous population receiving sanatorium treatment is too small to exercise a wide-spread influence upon the general population.

Having considered these general principles, I will now take up the leading features of the Maryland system.

Legislative control of tuberculosis concerns two main lines of action—(1) restriction of tuberculous infection derived from animal sources; (2) restriction of tuberculosis derived from human sources. As regards restriction of infection from animal sources, I may say, at once, that no provision

has been made by the Maryland legislature for any practical control of this mode of infection, and while I do not consider the problem by any means settled, I believe that the vast majority of cases of human tuberculosis are derived from a human source. From the standpoint of Maryland laws, the tuberculosis problem has resolved itself into the question of protecting the non-tuberculous members of the "tuberculous family." This is corollary to another aphorism, that tuberculosis practically only occurs as the result of prolonged and intimate exposure. It is evident that in order to reach the root of the matter the sanitary jurisdiction "must be brought into contact with the homes of the tuberculous patients." "Under these conditions not only are 90 per cent. of consumptives brought into relation with the sanitary authorities, but they are under surveillance at a very early stage of the disease. The particular nature of the communicability of tuberculosis makes it evident that as it is in the house that infection arises, and in the house that it is disseminated, the house must, therefore, be the proper point of attack. Though this is now being recognized and appreciated, the task of bringing the sanitary jurisdiction and the home into contact possesses so many difficulties and dangers that many sanitarians have hesitated to make any attempt to bring about such a condition. These obstructions are not insuperable, however, if it is recognized that direct relations between the State and the home are practically unnecessary. These relations may be brought about in the less direct manner. When the inevitable obstructions have been successfully surmounted, the sanitary executive will have the satisfaction of knowing that he has arrived at a point where he can put his ax to the root of the tree and need not be content with the small results to be obtained by chopping away at the branches." The necessity for the State to deal directly with the "tuberculous family" has been avoided in the Maryland law by making the physician, by statute, responsible for the safety of the family and making him the agent in carrying out the principles of State control.

The Maryland legislation against tuberculosis comprises two laws —one providing for registration and disinfection of the premises after the death or removal of a tuberculous patient, and the other, a special act providing for the institution of measures of prevention in the "tuberculous domicile." I leave out of consideration here the State law prohibiting spitting on railway trains and the several anti-spitting ordinances of Baltimore and the larger towns. Registration is, of course, fundamental in the control of tuberculosis, as it is in all other sanitary problems. Under the Maryland law the State Board of Health is required to keep a register of all persons in the State who are known to be afflicted with tuberculosis. The State Board of Health has the sole and exclusive control of this register, and is forbidden to permit its inspection

or to disclose any of its personal particulars. The persons charged with registration under the act are physicians and superintendents of institutions. Institutions are required to furnish their records on Monday of the week immediately following that in which the record has been made. Physicians are required to report within seven days. The superintendents of institutions are liable to a fine of not more than $25, and physicians to a fine of $10, for failure to comply. Householders are required to notify the local board of health within forty-eight hours of the death or removal of a tuberculous person. The apartments occupied by a consumptive are declared infected, and disinfection is mandatory upon the local health authorities. A penalty is also provided for letting for hire apartments occupied by a consumptive until they have been disinfected. These provisions are contained in Sections 56, 57, 58, 59, and 60 of the Code of Public General Laws of Maryland.

The essential provisions of the special tuberculosis act are: First, it is made the duty of every physician attending a case of pulmonary or laryngeal tuberculosis to provide for the safety of all individuals occupying the same house or apartment, and if no physician is attending such patient, this duty shall devolve upon the local health board, and all the duties made incumbent upon the physician under this law must be performed by the local board of health in all cases of pulmonary or laryngeal tuberculosis not attended by a physician, or when the physician is unwilling or unable to perform the duties specified. It is thus optional with the physician whether he performs these services or turns them over to the local health authorities. The State Board of Health furnishes a blank upon which the physician first reports the condition of the premises and makes his requisition for supplies. The State provides the supplies free of cost, in sufficient amount for one quarter in each package. After receiving the supplies the attending physician demonstrates their use and institutes all other necessary precautions concerning the patient, his family, the patient's room, and the premises. For these services the State pays $1.50. In order to make sure that the patient will carry out all reasonable precautions, a nuisance clause is inserted in the law providing that any person occupying the same house may make complaint of any tuberculous person who is improperly disposing of his sputum. The local health authorities then investigate, and serve a notice on the person offending, requiring him "to dispose of his sputum, saliva, or other bodily secretion or excretion in such a manner as to remove all reasonable cause of offense or danger." Failure to comply with this order is a misdemeanor punishable by a fine of $10. The information the physician returns includes the following in addition to the usual personal data:

Economic Data.—(*a*) Is the patient engaged in the original occupation? (*b*) Is the earning power as good as ever? (*c*) If working irregularly or at reduced wages, how long? (*d*) If totally disabled, is the patient confined to bed? (*e*) Consumption in the family history?

General Data.—(*a*) Number of children living or dead? (*b*) Are there infants or young children in the house? (*c*) If the patient is a mother, does she nurse an infant? (*d*) Does the patient habitually kiss other persons on the mouth? (*e*) Does the patient use dishes, tableware, pipes, clothing, handkerchiefs, or towels in common with other persons? (*f*) Does the patient prepare the food of the family?

Disposal of the Sputum.—(*a*) Does the patient spit upon the floor, walls, carpet, or furniture? (*b*) Does the patient spit into a spittoon used by other persons? (*c*) Does the patient spit into a handkerchief or into a paper napkin? (*d*) Into a paper sputum cup? (*e*) Into China, glass, or metal sputum-cup? (*f*) Is water, carbolic acid, or any disinfectant used in the sputum-cup?

Final Disposal of Sputum.—(*a*) Is sputum burned? (*b*) Is it thrown into water-closet or sewer? (*c*) Is it thrown away with garbage or other refuse? (*d*) Are the patient's handkerchiefs put into the wash with other clothing? (*e*) Are the patient's handkerchiefs disinfected before being laundered?

Condition of the Room.—(*a*) Is the room suitable in size, heating, and ventilation for a tuberculous person? (*b*) Are hangings, floor-coverings, and furniture such as admit of proper prophylaxis? (*c*) How are the walls finished—rough plaster, smooth plaster, wainscoting, papered, painted? (*d*) Are the walls or furniture ever wiped off with a disinfectant? (*e*) Is the room swept and dusted in an ordinary way with a feather-duster? (*f*) Are the floors ever washed with a disinfectant? (*g*) How many other persons occupy the patient's bedroom? (*h*) Does anybody share the patient's bed? (*i*) Is the patient's bedroom used as a kitchen or as a dining-room? (*j*) Do children play on the floor of the bedroom?

This law has been in operation since 1904 on an annual appropriation of $5000. During 1907 there were 2061 cases registered, of whom 1709 received supplies and 352 received no supplies. The largest cost in the execution of the law was in the issue of supplies and the fee of $1.50 to the physician. The cost of sputum-cups was at first prohibitive, so we devised a new sputum-cup and manufactured it ourselves. The cost of the supplies is as follows. The amounts given are for supplies sufficient for one quarter.

Cost of State Prophylaxis of Tuberculosis per Patient.—

75 sputum-cups	22.50 cents
1 bottle disinfectant	11.06 "
2 waterproof pockets	7.00 "
200 Japanese paper napkins	8.80 "
1 cup-holder	15.83 "
1 information book	0.90 cent
Cost per package for one quarter for one patient	66.09 cents
Cost for patient for one year	264.36 "

Approximately, $2.65 a year.

Assuming that each of these patients is attended by a physician who carries out the necessary prophylactic measures and receives a fee of $1.50, the total cost for each patient annually for the prophylactic supplies and the physician's fee will be $4.15. As there are estimated to be about 2000 new cases annually in Maryland, the total cost for supplies and physicians' fees in the State would be $8300. A very large proportion of patients, however, attend hospitals or dispensaries or are treated in the various institutions where they receive the necessary instruction, and so it is not necessary for us to pay fees in all cases registered in the office of the State Board of Health.

This law has been in operation in Maryland, as already stated, for a little less than four years. Naturally, one desires to draw some satisfactory conclusions as to its results. The important effect to be looked for is, of course, a diminished death-rate. As tuberculosis is a disease having a duration of from three to five years, it is not to be expected that legislation will have any decided effect on the death-rate in less than five years' time. I may say, with due caution and reservation, however, that the death-rate is declining very substantially in Maryland, whereas previous to 1904 there was no marked decline, the death-rate being almost stationary. By a not uncommon anomaly one of the most marked effects of the Maryland legislation has been the education of the public, and especially of the physicians. Previous to the law of 1904 physicians did not realize that they had any responsibility in the "tuberculous family" beyond caring for the patient. It is doubtful if, previous to 1904, more than 1 or 2 per cent. of the physicians in Maryland concerned themselves with the protection of members of the family. It can be authoritatively said that all the physicians now realize this obligation, or, if they do not realize it, it is impressed upon them by the families they are attending.

The following are the advantages of the Maryland law:

1. The State is brought into relation with the tuberculous patients without difficulty and without friction.

2. All classes of the population are reached.

3. The family regulation of tuberculosis is effected by dealing with the "tuberculous family," and the "tuberculous domicile," rather than the tuberculous community or individual.

4. The protection of the family is put in the hands of the attending physician, who, by his relation and long acquaintance with the family, is the only person in a position practically to accomplish it.

5. The means to make measures of prevention effective (prophylactic supplies) are furnished to the "tuberculous family" by the State.

AN ACT TO PROTECT CITIZENS OF MARYLAND FROM CERTAIN COMMUNICABLE DISEASES, ESPECIALLY TUBERCULOSIS OF THE LUNGS AND LARYNX.

CHAPTER 399, ACTS OF 1904.

SECTION 1. Be it enacted by the General Assembly of Maryland that from and after the date of the passage of this Act, any person affected with any disease whose virus or infecting agent is contained in the sputum, saliva, or other bodily secretion or excretion who shall so dispose of his sputum, saliva, or other bodily secretion or excretion as to cause offense or danger to any person or persons occupying the same room or apartment, house or part of a house, shall on complaint of any person or persons subjected to such offense or danger be deemed guilty of a nuisance, and any person subjected to such a nuisance may make complaint in person or writing to the Commissioner of Health of Baltimore city or the local health officer of any city, town or country in the State of Maryland where the nuisance complained of arises or exists and it shall be the duty of the Commissioner of Health or of any local health officer receiving such complaint to investigate, and if it appears that the nuisance complained of is such as to cause offense or danger to any person occupying the same room, apartment, house or part of a house, he shall serve notice upon the person so complained of, reciting the alleged cause of offense or danger and requiring him to dispose of his sputum, saliva or other bodily secretion or excretion in such a manner as to remove all reasonable cause of offense or danger. And any person failing or refusing to comply with orders or regulations of the Health Commissioner of Baltimore city or of the health officer of any city, town or county, requiring such nuisance to be abated, shall be deemed guilty of a misdemeanor and on conviction thereof shall be fined ten dollars, provided that the requirements of this section shall apply only to pulmonary and laryngeal tuberculosis, pneumonia, influenza and such other diseases as the State Board of Health may from time to time determine to be communicable by means of sputum, saliva, or other bodily secretion or excretion.

SECTION 2. It shall be the duty of the physician attending any case of pulmonary or laryngeal tuberculosis to provide for the safety of all individuals occupying the same house or apartment, and if no physician be attending such patient this duty shall devolve upon the local health board and all duties made incumbent upon the physician in the following sections shall be performed by the local board of health in all cases of pulmonary or laryngeal tuberculosis not attended by a physician or when the physician is unwilling or unable to perform the duties specified.

SECTION 3. It shall be the duty of the local board of health to transmit to the physician reporting any case of pulmonary or laryngeal tuberculosis a printed report after the manner and form to be prepared and authorized by the State Board of Health, naming such procedures and precautions as in the opinion of the State Board of Health are necessary or desirable to be taken on the premises of the said tuberculous case, and it shall be the duty of the State Board of Health to print and keep on hand sufficient number of such report blanks and to furnish the same in sufficient number to any local board of health upon due requisition of the latter. Upon receipt of

the blank report the physician shall fill, sign, and date the same and return to the local board of health without delay, provided that if the attending physician is unwilling or unable to undertake the precedure and precautions specified he shall so state upon his report blank, the duties herein prescribed shall then devolve upon the local board of health. Upon receipt of this report the local board of health shall carefully examine the same and if satisfied that the attending physician shall have taken all necessary and desirable precautions to insure the safety of all persons living in the house or apartments occupied by the consumptive and to insure the safety of the people of the State of Maryland, the said local board of health shall issue an order on the State Board of Health in favor of the attending physician for the sum of one dollar and fifty cents ($1.50) to be paid by the State Board of Health out of a fund hereinafter provided. If the precautions taken by the attending physician are, in the opinion of the local board of health, not such as will remove all reasonable danger or probability of danger to the persons occupying the said house or apartment the local board of health shall return to the attending physician the report blank with a letter specifying the additional precautions which they shall require him to take, and the said attending physician shall immediately take the additional precautions specified and shall return the same on the original blank to the local board of health. It shall further be the duty of the local board of health to transmit to the physician reporting any case of pulmonary or laryngeal tuberculosis a printed requisition which shall be prepared by the State Board of Health and issued in sufficient number to any local board of health upon due requisition of the latter. Upon this requisition blank shall be named the materials kept on hand by the local board of health for the prevention of the spread of the disease, and it shall be the duty of the State Board of Health to purchase such supplies as it may deem necessary from the fund hereinafter provided and to supply them to any local board of health upon the requisition of the latter. Any physician may return a duly signed requisition to the local board of health for such of the specified materials and in such amount as he may deem necessary in preventing the spread of the disease, and all local boards of health shall honor as far as possible a requisition signed by the attending physician in such case. It shall be the duty of every local board of health to transmit to every physician reporting any case of pulmonary or laryngeal tuberculosis or to the persons reported as suffering from this disease provided the latter have no attending physician, a circular of information prepared and printed by the State Board of Health and which shall be furnished in sufficient quantity to every local board of health on due requisition of the latter. This circular of information shall inform the consumptive of the best methods of cure of his disease and of the precautions necessary to avoid transmitting the disease to others.

Section 4. Any physician or person practising as a physician who shall fail to execute the duties prescribed by this act or who shall knowingly report as affected with pulmonary or laryngeal tuberculosis any person who is not so affected, or who shall wilfully make any false statement concerning the name, age, color, sex, address, or occupation of any person reported as affected with pulmonary or laryngeal tuberculosis, or who shall certify falsely as to any of the precautions taken to prevent the spread of infection shall be deemed guilty of fraud and on conviction thereof shall

be subject to a fine of one hundred dollars or to imprisonment not exceeding six months, or both fine and imprisonment in the discretion of the court.

SECTION 5. The State Board of Health shall prepare and keep on hand all the circulars, blanks and printed matter required by the preceding section and all additional printed matter necessary in executing the provisions of this act, and shall issue the same in sufficient quantity to the local boards of health on due requisition of the latter, and the said State Board of Health shall further purchase and issue upon due requisition to the local boards of health the supplies required by the provisions of this act. For the purpose of defraying the expenses of printed matter and postage, for recompensing physicians for measures of prophylaxis, and for purchasing and issuing the supplies necessary in carrying out the provisions of this act the sum of five thousand dollars ($5,000) annually or as much thereof as may be necessary is hereby appropriated, payable by the treasurer of the State upon warrant of the comptroller at such times and in such sums as may be authorized by the State Board of Health upon presentation of the proper voucher.

REGISTRATION OF TUBERCULOSIS.

CHAPTER 412, ACTS OF 1904.

SECTION 34G. Be it enacted by the General Assembly of Maryland that from and after the passage of this act the State Board of Health of Maryland shall keep a register of all persons in this State who are known to be affected with tuberculosis. The State Board of Health shall have sole and exclusive control of said register, and shall not permit inspection thereof nor disclose any of its personal particulars except to officials authorized under the laws of Maryland to receive such information.

SECTION 34H. The superintendent or other person in charge or control of any hospital, dispensary, school, reformatory or other institution deriving the whole or any part of its support from the public funds of the State of Maryland or any city, town or county in the State of Maryland, having in charge or under care of custody any person or persons suffering with pulmonary or laryngeal tuberculosis shall within forty-eight hours after recognition of such disease make or cause to be made in the manner and form prescribed by the State Board of Health a record of the name, age, sex, color, occupation, social condition and residence of the person or persons so affected, together with such information as may seem necessary or important. And all such records shall be delivered under seal of the State Board of Health on Monday of the week immediately following that in which the records were made. Any superintendent or other person charged with a duty under this section who shall fail or refuse to comply with the requirements of this section shall be deemed guilty of a misdemeanor, and on conviction thereof shall be fined not more than twenty-five dollars.

SECTION 34I. Whenever any physician knows that any person under his professional care is affected with pulmonary or laryngeal tuberculosis he shall transmit to the secretary of the State Board of Health within seven days and upon blanks provided by the State Board of Health for that purpose the name, age, sex, color, occupation, social condition and residence of

such person, and any physician failing or refusing to comply with the requirements of this section shall be deemed guilty of a misdemeanor and on conviction thereof shall be subject to a fine of ten dollars.

SECTION 34J. The apartments occupied by any consumptive shall be deemed infected and when vacated by death or removal of said consumptive occupant shall be disinfected by the board of health of the city, town, or county in which such apartments are situated. And it shall be the duty of the householder, physician, or other person having knowledge of the facts to notify the local board of health within forty-eight hours after the death or removal of a person affected with pulmonary or laryngeal tuberculosis. And any person failing to comply with the provisions of this section shall be deemed guilty of a misdemeanor and on conviction thereof shall be subject to a fine of ten dollars.

SECTION 34K. Any person who lets for hire or causes or permits any one to occupy apartments previously occupied by a consumptive, before such apartments shall have been disinfected by a board of health, shall be guilty of a misdemeanor and upon conviction thereof shall be fined twenty-five dollars.

La réglementation Statutaire contre la tuberculose en Maryland.—(PRICE.)

La réglementation statutaire, est l'arme la plus nouvelle de la lutte antituberculeuse.

Le contrôle coordiné de la tuberculose s'en divise en trois divisions. 1ière, Le gouvernement des malades; cela comprend le traitement bien que l'isolement. 2ième, Le sentiment publique: (Cela comprend l'éclaircissement publique.) 3ième, La Réglementation statutaire. Les deux dernières ont usage de prévenir, lui même. Les vices du sentiment publique sont variabilité et inconstance. La réglementation statutaire pourvoit au contrôle constant et uniforme. La tuberculose est transmise de la plupart, aux associés intimes. Dans la réglementation statutaire il faut considérer le propagation *intensif*, plus que le propagation d'une manière etendue. C'est la "*famille tuberculeuse*" et le "*domicile tuberculeux*" auxquelles il faut adresser nos tentatives.

La loi de Maryland est d'accord avec le besoin fondamental d'enregistrement. Les individus confiés aux soins d'enregistrement, sont les médecins et les institutions. Les rapports sont faits direct aux autorités d'Etat. Le secret des rapports, est protegé en loi. La désinfection après le mort ou démanagement, est un fait ordonné contre (sur) les autorités locals de santé. A louer des appartements sans désinfection, c'est un delit. Les médecins sont confiés aux soins par loi de proteger la "*famille tuberculeuse.*" En défaut d'acte par le médecin, la responsabilité encombe a la part des autorités locals de santé. Pour les offices prophylactique, l'État paie un honoraire de $1.50 (7 fr. 50 cen.). Il faut que tout les mesures pris soit recités sur une forme imprimée. Provisions pour la prophylaxie et un livre enseigne, sont

donnés sans frais, aux malades par leurs médecins. Les malades sont defendus d'exposer à danger leurs associés. La disposition inconvenant des crachats du poumon est un delit, punissable par mettre a l'amende.

Dans le systême Maryland, la plupart de la population tuberculeuse est en rapport avec le Bureau de Santé, et au degré le plus précoce de leur maladie.

Inspeccion reglementaria contra la tuberculosis en Maryland.—(PRICE.)

La inspección reglamentaria es el arma más moderna en la campaña contra la tuberculosis. La inspección coordinada de la tuberculosis se puede dividir en tres partes; 1°. Dirección de los enfermos, que, incluye el tratamiento y aislamiento de los pacientes; 2°. Opinión publica, que se refiere á la información al publico; 3°. Inspección reglamentaria. Las dos últimas hacen referencia à las precauciones convenientes. Los defectos de la opinión públic son la variabilidad y la inconstancia. La regulacion legal requiere una inspección uniforme y constante. La tuberculosis se transmite principalmente á las personas con quienes se está en más intimo contacto. En la regulación legal debriamos atender á la propagación *intensiva* antes que á la *extensiva*. El punto de ataque debe ser la *familia de los tuberculosos* y *domicilio de los tuberculosos*.

Las leyes de Maryland reunen el primer requisto, —el registro. Los encargados del registro son los médicos y las instituciones. Los informes se dan directamente á las autoridades del Estado. El secreto de los archivos es guardado por la ley. La desinfección es imperiosa para las autoridades después de una defuncion ó de una mudanza. El alquilar habitaciones que no hayan sido desinfectada es una transgresión. Los médicos son legalmente responsables de la protección de *la familia tuberculosa*. Donde los médicos no tengan jurisdicción, la junta local de Sanidad es responsable. El Estado paga á los doctores los honorarios de $1.50 por profilaxis. Se debe dar parte en forma impresa de todas las medidas tomadas. Provisiones profilácticas y un libro de instrucciones se reparten gratis á casa enfermo por conducto de su medico. Se prohibe á los enfermos el poner á sus compañeros en peligro. El descuido con respecto á los esputos es una transgresion punible que se castiga con multa.

Con el sistema de Maryland se llega al foco principal de las poblaciones que padecen de tuberculosis, desde el principio de la enfermedad.

Staatliche Controlle der Tuberculose in Maryland.—(PRICE.)

Die neueste Waffe im Feldzuge gegen die Tuberkulose ist gesetzliche (staatliche) Controlle. Coordinierte Controlle der Tuberculose kann in drei Klassen geteilt werden. Erste, Behandlung der Kranken; dies schliesst

Pflege und Isolierung ein. Zweite, Volksmeinung; dies umfasst Volksbildung. Dritte, gesetzliche Controlle; die beiden letzten behandeln Prophylaxie, speciell Verhütung. Die Volksgesinnung als Waffe hat ihre Fehler, nämlich, Wankelmut und Unbeständigkeit. Gesetzliche Regulation giebt uns fortwährende und übereinstimmende Controlle. Die Tuberculose wird meistens and ie Nächststehenden übertragen. In gesetzlicher Regulierung sollten wir die Verbreitung in engeren Kreisen mehr berücksichtigen als in allgemeinen. Der Angriffspunkt ist die schwindsüchtige Familie und deren Wohnung.

Das Gesetz Maryland's trifft die unterliegende Forderung durch Registration; die Aerzte und Anstalten sind mit der Registration betraut. Die Berichte werden direct an die Staatsbehörde gemacht, bleiben dann gesetzlich Vertrauenssache. Die locale Gesundheitsbehörde verlangt, dass nach jedem Todesfalle oder Umzug disinfizirt wird. Vermietung einer nicht disinfizirt (reinen) Wohnung wird als strafbares Benehmen angesehen. Aerzte sind gesetzlich verantwortlich für die Protection der Phthisiker. Wo Aerzte nicht handhaben können ist die Gesundheitsbehörde verantwortlich. Der Staat zahlt ein und ein halb Thaler für Anordnungen zur Verhütung. Alle getroffenen Massregeln müssen auf gedrucktem Formular der Behörde berichtet werden. Vorbauungsmittel sowie Instructions-Brochüren werden dem Patienten durch den Arzt frei zugeschickt. Patienten dürfen ihre Umgebung keiner Ansteckungsgefahr aussetzen. Unschickliche Behandlung des Speichels oder allgemeines Spucken ist gesetzlich strafbar.

Das System Maryland's erreicht somit die meisten Schwindsüchtigen oftmals im Anfangsstadium.

DISCUSSION.

Dr. Liceaga (Mexico) stated—in connection with compulsory notification, as pointed out by several of the previous speakers—that Mexico has already enacted regulations to that effect, and called the attention of the Section to the legal ordinances which have been in force in Mexico since 1903, in relation to the resolutions relative to tuberculosis adopted by the Third Sanitary Convention of the American Republics. There is now under consideration a law in regard to the admission of foreigners or immigrants, a clause of which project specifies that tuberculous patients coming from abroad shall not be admitted.

Art. 262. Those who exercise the practice of medicine are obliged to notify the Board of Health of any case confirmed or suspected, which may come to their observation, of Asiatic cholera, bubonic plague, yellow fever, typhus, typhoid fever, smallpox, varioloid, scarlatina, pulmonary tuberculosis, puerperal septic accident, or diphtheria. They should file their notices,

as soon as they form their diagnosis or suspect that their patients are suffering from any of the diseases.

Art. 272. In the manner prescribed by the respective ordinances there shall take place the disinfection of the articles that can be disinfected, as well as of the houses or apartments in which any case of the diseases enumerated in Arts. 262 and 263 have occurred. To the same ordinance will be subject the destruction of animals which may be able to carry the infection.

Art. 273. No domestic animals will be permitted in houses where occur cases of the diseases enumerated in Arts. 262 and 263, while the disease lasts and until proper disinfection has been made, during the interval prescribed in the respective ordinance.

Art. 274. It shall be compulsory for the owners of the houses where a case of the diseases enumerated in Arts. 262 and 263 takes place, as soon as the health authorities ordain it, to do all that may be necessary in his judgment, in order to remove the unhealthy conditions of said house.

Art. 276. Those suffering from infectious contagious diseases cannot be carried in vehicles of the public service.

Art. 277. A public vehicle (carriage or wagon) whiich, notwthstanding the prohibition of the former Article, has served to carry some one for hire, cannot be used again until it has been properly disinfected.

Art. 323. It is prohibited to expectorate on the cars and other vehicles in the city. Persons violating this provision shall be punished by the municipal authority with the fines fixed by the respective police power.

Prof. Dr. Robert Koch expressed his belief that the successful execution of the measures described by Dr. Biggs represents a most important feature of the war against tuberculosis. He expressed his admiration of Dr. Biggs' work in New York city, in view of the extraordinary difficulties which confront the health board in the matter of immigration, and in view of the extremely unfortunate conditions of life in the overcrowded tenement-houses. But Dr. Biggs with his organization of the New York Board of Health has conquered these difficulties, and he considers the methods carried out in New York as exemplary. The two most noteworthy of these measures are: Compulsory notification of all cases of tuberculosis; and, second, the removal by force, if necessary, of such patients as are dangerous to their immediate neighbors. He described the conditions in Germany and explained that the problem which confronts the German authorities is that of seeking out cases of tuberculosis, and of caring for them in their own homes, and, in so far as is possible, rendering them harmless. He hopes, however, that they will gradually be able to approach such measures as have been successfully carried out in New York city.

Dr. Newsholme (London) stated that the sanitary development which has been attained in New York city has caused much admiration. That the method of compulsory notification and the employment of 400 physicians in the city of New York was a fact which the English envied. That

public opinion in London would not tolerate at the present time compulsory notification, for in itself it had no other value than for statistics. He added that in England some cities have notification, but not on the same plan as the American. He was of the opinion that he did not agree that the cure of the disease was objectionable in the houses. That home visitation was the key of the situation, and that under the present conditions of living it was exceedingly difficult to undertake home treatment, but that in the future the progress that is being made in regard to construction of dwellings would warrant such a treatment. He added that, so far as the hospital system of the city of New York is concerned, New York has made great progress, as shown by the reduction of the death-rate to 6.6 per cent. He further stated that if the percentage of segregation were increased, the spreading of the disease would decrease accordingly, and that dispensary treatment was undoubtedly a powerful auxiliary. He is inclined to think that it is better to treat 600 patients a month at different intervals, than to offer treatment to 100 patients six consecutive months only. He congratulates the author of the paper and also congratulates New York for its marvelous work in this connection.

Prof. Dr. Harbitz (Norway): Under date of May 9, 1900, a special law on tuberculosis was passed in Norway. This law includes as its most important point the requirement of compulsory notification, first, of every case with infectious secretions—so-called open tuberculosis; second, of cases of death from this form. An optional notification in regard to the removal of patients was introduced and is recommended by the local boards of health and is approved by the government.

Following notification, sanitary measures are to be carried out: (1) The physician who treats the case is required to give advice in the matter of preventing the spread of infection, and to keep every case under his personal supervision. (2) Patients can be sent to a hospital at public expense, and can, if necessary, be taken by force. This is seldom resorted to. The State pays four-tenths of the care of the poor in the hospitals, the rest of the expense falling upon the cities or communities. (3) Disinfection of the lodgings or the clothing is carried out in case of death or removal. Persons can also be excluded from certain means of livelihood, as from nursing, and the selling of food products, but this is also seldom resorted to. These measures, very like the regulations of the city of New York, differ from them in that they concern the entire country.

As regards the execution of this law, it is to be noted that compulsory notification has not met with resistance; often in cases of death or removal the disinfection of the residence has been demanded by the inmates of the house. Exaggerated fear of infection has occurred here and there, but has given place to more sensible views. No cases were reported where patients

have complained of compulsory notification. The local boards of health very often demand that compulsory notification be extended to embrace changes of dwelling—the best proof that it is possible to carry out notification in accordance with the demands of humanity.

The tuberculosis law can be said to have done much good and to represent a real step in advance. Many new cases are discovered; the desire for cleanliness has increased, and physicians feel themselves bound to teach their patients ordinary rules of hygiene.

The mortality from tuberculosis of the lungs in Norway increased slowly but steadily up to 1899 and 1900, then attaining 2.8 per cent. of the living population; since then it has decreased; in 1904 and 1905 it was 2.4, and in 1906, 2.3 per cent. It is to be hoped that this result partially depends on the measures that have just been described. The reasons that the mortality has not decreased more and more rapidly are, that industry is in a stage of great development in Norway, and that communication of later years between the various parts of the country has become much better, with the attendant increased ease of spreading the infection in the west and in the north. Another reason is the emigration from Norway to America, which every year takes many thousands of men and women in their best age out of Norway, while many of those emigrants who return, return with consumption and contribute to the spread of the infection.

Dr. Theodore Altschul: In this connection, compulsory notification must include as many cases as possible. Compulsory notification is further of great importance in matters of statistics, without which we cannot arrive at true conclusions. In Austria there is no compulsory notification in cases of tuberculosis. They must, therefore, rely on the obligatory workingmen's insurance system, as was suggested by Dr. Hamel. In the second place, they can call upon their school system. The school physicians can make use of the cutaneous reaction. In the division in which such examination has been made obligatory, this reaction has given 45 per cent. positive results in children suspected of tuberculosis. He expressed his admiration of the work done by Dr. Biggs, and his hope that Austria would eventually attain to such measures.

Dr. von Mansfelde (Nebraska) wished to consider a point which had occurred to him while viewing the exhibits. Since 80 per cent. or more of the patients belong to the poorer classes, we must invent such measures and such contrivances as can be utilized by the extremely poor. He thought that we had not spent enough energy in making provision for the home treatment of such cases. He thought, further, that compulsory notification should begin with the newborn child, namely, that the authorities should be notified of the birth of a child into a home infected with the germs of tuberculosis.

Dr. Woodward (District of Columbia) stated that the reason why New York has taken the lead in this crusade is due to the fact that its board of health is invested with enormous power, which is based on the respect of the people. He added that if we only depended on education we would not be successful; that compulsion has resulted favorably; that if small municipalities had the same power as the board of health of New York city, but not the means to carry out the campaign, we would bring all methods in disrepute, for one must not only have the power, but also the means of raising the necessary moneys.

Dr. Bryce (Ottawa) said that he is also deeply interested in house supervision; he hopes that the discussion will come once more before the section. He wishes that shops and factories would be comprehended under the same supervision. By doing so we would go to the root of the matter that occupies the whole world.

Dr. Price (Maryland), in closing the discussion, wished to call the attention of the section to a tendency which is becoming common—that of overshadowing the infectious side of tuberculosis by the social and economic problems involved. He believed that the fact that tuberculosis is an infectious disease represents the central point of attack, and that this fact should be considered predominant without belittling the other factors.

Dr. Hamel (Berlin): Der Vorschlag von Herrn Sanitätsrat Altschul—Prag, auch die von den Schulärzten ermittelten Tuberkulosefälle zur Kenntnis der Behörde gelangen zu lassen, ist zweifellos sehr wertvoll. Wir können dadurch der Bekämpfung der Tuberkulose des Kindesalters, welches bisher nicht die erwünschte Abnahme der Seuche erkennen liess, einen Schritt näher kommen. In Preussen ist in dieser Hinsicht in neuerer Zeit Bestimmung dahin ergangen, dass sowohl Kinder, wie Lehrer, welche an offener Tuberkulose leiden, vom allgemeinen Schulunterricht auszuschliessen sind. Ob man freilich, wie Herr Altschul anregte, eventuell so weit gehen soll, schon jeden Fall, der auf eine Impfung nach Pirquet reagierte, der Anzeige zu unterwerfen, möchte ich noch dahingestellt sein lassen. Andererseits aber dürfte sich namentlich durch ein verständnisvolles Zusammenwirken von Schulärzten und Fürsorgestellen meines Erachtens an vielen Orten ein sehr segensreicher Nutzen erzielen lassen.

SECTION VI.

State and Municipal Control of Tuberculosis (*Continued*).

FIFTH SESSION.

Wednesday afternoon, September 30, 1908.

THE ADMINISTRATIVE CONTROL OF TUBERCULOSIS. ECONOMIC ASPECTS OF FREE TREATMENT.

Section VI was called to order by the President, Surgeon-General Walter Wyman, on Wednesday afternoon, September 30th, at half-past two o'clock

GEHEIMRAT PÜTTER'S INFORMATION BUREAUS AND DISPENSARIES.

PART OF AN ADDRESS BY DR. HERMANN M. BIGGS,
New York.

THEIR PURPOSE.—The purpose of the information bureaus and dispensaries (Auskunfts- und Fürsorgestellen) is to prevent the spread of pulmonary tuberculosis.

THEIR SPECIAL FUNCTIONS.—At the information bureaus and dispensaries the lungs of persons are examined free of charge. The patients are instructed as to the necessary measures to be taken against spreading tuberculosis and are cared for as circumstances require.

Medical treatment is not provided at the dispensaries, but is left to the lodges (Kassen), medical officers of the Board of Health (Armenärzte), private physicians, and the hospitals and polyclinics.

Persons already under medical treatment must, in order to be examined, bring with them a note of indorsement from their doctor.

NUMBER, LOCATION, CONSULTATION HOURS.—Districts of the dispensaries in Berlin: (1) For Berlin N. W., W., and those western suburbs that have as yet no dispensaries of their own; Royal Charite Hospital, Schumannstrasse 21, Mondays and Fridays from 4 P. M. to 6 P. M. (2) For Berlin S. W.,

S., S. E., and the southern suburbs, Neuenburgerstrasse 23 (near Alexandrinenstrasse), Wednesdays and Saturdays from 4 P. M. to 6 P. M. (3) For Berlin E. and the eastern suburbs, Pallisadenstrasse 25 (near Strausbergerstrasse), Tuesdays from 4 P. M. to 6 P. M. and Thursdays from 10 A. M. to 12 M. (4) For Berlin N: E. and the northeastern suburbs, Pallisadenstrasse 25 (near Strausbergerstrasse), Tuesdays from 10 A. M. to 12 M. (5) For Berlin N. and the northern suburbs, Luisenstrasse 8, first floor, Mondays and Fridays from 4 P. M. to 6 P. M.

THEIR MANAGEMENT.—The dispensaries in Berlin are not a municipal institution, but are under the control of a central committee, of which Geheimer Regierungsrat Pütter, who is the Administrative Director of the Royal Charite Hospital, is President.

THEIR STAFF.—In addition to the President, the staff comprises seven doctors and fourteen nurses. Special care must be taken in selecting the nurses and in instructing them in their work in connection with the dispensaries.

VOLUNTEER HELP.—The dispensaries seek for friends throughout the whole population. The assistance of the medical profession is of special importance in helping on the movement—a movement in no way injurious to their practice. Landlords profit greatly by having the sanitation of their houses investigated.

PERSONS ELIGIBLE FOR TREATMENT.—Any consumptive desiring it, whether in an early or advanced stage of the disease, whether rich or poor, can obtain advice at the dispensaries. Should any single member of a family, on examination, prove to be tuberculous, all the members of the family are required to present themselves for examination. The ever-present danger of other members of the family being affected renders it necessary, in cases of indigence, to make provision for the whole family.

THEIR WORKING PRINCIPLES.—The work of the dispensaries is a combination of hygiene and nursing. The rendering of expectorated matter innocuous and the sanitation of dwellings are included under the heading "Hygiene." We assist in the disinfection of dwellings. We train people to be clean. Our aim is to obtain for every pronounced consumptive a separate room in his home, in order to minimize the danger of infection for other members of the family and in the patient's own interest. Where necessary, we also provide a nurse. We try to improve the economic situation of the family, so that the patient may get the care and attention necessary in the treatment of tuberculosis. Where the home conditions do not permit of this, we arrange for their admission into sanatoriums (Lungenheilstätten), homes for consumptives (Heimstatte), forest convalescent homes (Walderholungestatten), and hospitals, or send them into the country.

In cases where there are children in danger of infection, and pronounced

anemia, scrofula, or inclination to catarrh appears, we arrange for their admission into various institutions, such as the children's sanatorium at Gross-Lichterfelde, near Berlin, or we send them to the mountains, the seaside, or into the country.

We remain in close touch with our patients and their families for many years, and keep an exact record concerning them.

The inquiry form for dispensaries is as follows: Statistics for the period from September 1, 1907, to March 1, 1908:

Sixty-seven thousand two hundred and forty-three persons have been examined for pulmonary tuberculosis up to March 1, 1908.

Thirty-six thousand three hundred and ninety-three homes of consumptive persons have been rendered as sanitary as possible and kept under constant supervision. This very important work of the information bureaus and dispensaries, by which the housewife is literally trained in the hygienic treatment of her family and home, has given more satisfactory results in the field of domestic hygiene than any other methods hitherto adopted. Of these dwellings, 50 per cent. to 60 per cent. were clean and healthy.

Seven hundred and forty beds have been provided in order that sick persons may not have to sleep with healthy persons. Any available couches have also been called into requisition.

Eight thousand nine hundred and twenty-seven Marks, in amounts varying from 5, 6, 7, to 10 Marks, were granted from the dispensary funds toward paying rent.

Forty-nine thousand five hundred and fifty Marks were granted to assist cases of urgent need. The Poor Commission (Armendirektion) had no share in providing the two sums of money just mentioned, although, when called upon, they have given generously in many cases.

Two thousand five hundred and two adult consumptives who had been refused by the state insurance society (Landes-Versicherungsanstalt) as incurable were sent to the information bureaus and dispensaries, according to agreement. These persons were subjected to careful observation in various ways, or to further treatment by their doctors or sent to hospitals and open-air resorts. Out of this number, 1358 persons were discharged after having considerably improved in health; these would probably have died early or fallen victims to the dread disease had they not been suitably cared for by the information bureaus and dispensaries.

Two thousand five hundred and nine children were placed in children's sanatoriums (Kinderheilstätten).

Two thousand one hundred and ninety children were placed in forest sanatoriums (Walderholungstätten).

One thousand and fifty-five persons, on account of the seriousness of their disease, were advised to enter a hospital immediately.

The number of applicants has increased of late to the rate of 10,000 persons quarterly.

Source of Funds.—One must distinguish between—(1) Expenses in connection with the management—salaries, rent, and other minor expenses. Funds to meet these are obtained from the amount—namely, 40,000 Marks—paid annually by the state insurance society (Landesversicherungsanstalt) of Berlin (Dr. Freund). Expenses: 25,000 Marks.

(2) The funds applied to the relief of patients and their families are raised by applications sent to the various authorities who are connected with consumptives, such, for instance, as the poor commission (Armendirektion), the post-office authorities, the railway authorities, state insurance society (Landes-Versicherungsanstalt), all state and imperial authorities (Staats- und Reichsbehorden), church authorities, all endowments, associations of various kinds, institutions, factories, and other places of business. In this way over 2,000,000 Marks were raised for our patients in the space of three and one-half years.

DISCUSSION.

Dr. James Alexander Miller (New York): The importance and value of the work described by Dr. Pütter is evident, and the results which he described are certainly remarkable. Similar efforts will, of necessity, be undertaken everywhere as progress of our campaign against tuberculosis extends. It would seem to me, however, that in this country certain modifications of Dr. Pütter's plan will be necessary in order to insure the results which we would hope to obtain. It would probably be impossible at the present time to establish a salaried staff in such a manner as is done in Berlin, and it would also probably be impracticable and inadvisable to arrange for regular examinations of suspected cases of tuberculosis for any except charity patients. In New York the work which corresponds to that of Dr. Pütter in Berlin is now being done in connection with the various clinics which compose the Association of Tuberculosis Clinics of New York.

There are eleven such clinics in the city, and the city has been apportioned by districts for purposes of easy administration and for facilitating the work of the visiting nurses. By this plan cases are transferred from one clinic to another by means of a card system. In the last few years, a large proportion of this work has been devoted to the examination of the other members of the families of the patients which apply for treatment, and also for examination of suspects found by the various charitable and social workers throughout the city. In this way each clinic has become the center for expert advice and reliable information in regard to tuberculosis for each district of the city, and it is our plan to rapidly extend this work, so that many more clinics will be established, with the consequent diminution in the size of the districts,

and ultimately the provision in special clinics for all cases of tuberculosis which are not in institutions.

It will not be long, probably, before the Board of Health will be willing to promulgate the order that no case of pulmonary tuberculosis shall be treated in any but a special tuberculosis dispensary.

The Association of Tuberculosis Clinics has further strengthened its influence upon the community in New York by the formation of an associate membership, composed of the representatives of the various charity associations, social settlements, parish houses, and private individuals interested in tuberculosis, so that gradually the campaign for the control of tuberculosis in the homes of the poor is becoming centralized, and all efforts are working together toward the ultimate control of this disease among the poor.

It would seem, therefore, that in this country, at least, this work will be connected with the tuberculosis clinics, and that the matter of examination of suspected cases will thus be combined with the treatment of the cases already known to be tuberculous, and that there will not be the need for the establishment of a separate and distinct system, such as exists in Berlin.

Dr. Edward O. Otis (Boston): I desire, in the first place, to express my appreciation of this exceedingly interesting and instructive account of the work of the "Information Bureaus and Dispensaries" under the direction of Geheimrat Pütter. The extreme value of such work in the detection and prevention of tuberculosis is obvious to all.

In this country (the United States) the tuberculosis dispensaries, either alone or in coöperation with various charitable institutions, such as the Associated Charities, etc., are doing essentially the same kind of work, only their efforts are confined to those who are unable to pay a physician,—to the poor,—and medical treatment, if indicated, is included in their services. Some of these dispensaries are under State or municipal control and support, while others are supported by private charity. If a consumptive is well off, I see no reason why he should be examined free, and generally, if not always, he prefers to consult his own physician or be referrred by him to an expert, and pay for the examination.

In the city of Boston and many other cities registration with the Board of Health of all cases of tuberculosis is required by law, and the Board of Health in each instance investigates the sanitary condition of the consumptive's home. The dispensaries also have connected with them trained nurses who also visit at their homes each case of tuberculosis and give instructions as to proper hygiene and method of living, as well as the protection of the other members of the household. In our Boston tuberculosis dispensaries, and, I doubt not, in many others, the nurse, when she visits the consumptive's home, urges all the other members of the family to present themselves at the dispensary for an examination, although we have no power to require this.

When disinfection is required, this is invariably done by the Board of Health, which is considered a part of its legitimate duties. Some of our dispensaries, as the Phipps Institute of Philadelphia and the Boston Municipal Dispensary, provide food, when necessary, such as milk and eggs, while others refer the cases requiring such assistance to the various charities or diet-kitchens.

As with the Berlin dispensaries, so in ours, we provide so far as possible for the proper disposal of patients in sanatoriums, if early cases, or in hospitals, if advanced cases, unless, for one or another reason, the patient has to be treated at home.

While, with the Berlin "Information Bureaus and Dispensaries" poor aid is rendered by these institutions themselves, with our dispensaries cases requiring such aid are more generally referred to other charitable institutions, which are more or less numerous in every city. Tuberculosis associations also aid the dispensaries in the matter of obtaining aid and in many other ways.

In order to do the best for the patient as well as for the community in the way of prevention, control and continued supervision of the consumptive is most essential; he must be visited periodically if at home, or kept track of if in an institution; such continued supervision as Geheimrat Pütter's institutions exercise is perhaps the most important part of their work.

One other need, and in my opinion, a very insistent one, in the tuberculosis work, and which naturally comes under the cognizance of such dispensaries, is the provision of suitable occupation for consumptives who are able to do a certain amount of work—enough, perhaps, for their support. This I have found to be a very difficult matter. The public looks upon a consumptive, even though his disease may be arrested, as more or less of a menace, and this attitude of the public, we must confess, is largely due to our own teaching regarding the contagiousness of the disease—perhaps it was inevitable, but since such is the case to a greater or less extent, we must accept the situation and try to remedy it; perhaps it can be done by farm colonies or similar institutions, perhaps by intelligence offices in connection with the information bureaus, by means of which wholesome occupations in the country on the land can be obtained for such consumptives. Much can also be done, I believe, by the sanatoriums in training their patients, when on the road to recovery, to certain occupations for which there is a demand, such as gardeners, florists, carpenters, chauffeurs, etc. This is already being done, as we know, in some of the English sanatoriums, and perhaps elsewhere.

We have now arrived at that stage in the tuberculosis warfare when we must take the next logical step, which is to preserve the health of the consumptive whose disease has been arrested or improved, by subsequent care and supervision, and by providing him with self-supporting work which will not jeopardize the cure or improvement already attained, and in which he will not be a menace to those about him.

THE GOVERNMENT CONTROL OF TUBERCULOUS PATIENTS IN PENNSYLVANIA.

By Samuel G. Dixon, M.D.,

Commissioner of Health of the Commonwealth of Pennsylvania.

By the term "governmental" in connection with the care of tuberculous patients and the control of tuberculosis, I understand a legal, executive authority, whether national, State, municipal, military, or civil. It is used in distinction from the phrases private, charitable, or denominational, and conveys a sense of authority, which makes for the maintenance of discipline—a most important matter in the management of the tuberculous—and at the same time of abundance of resource and of permanence. A third thought which it suggests is that the recipient of the care is in no sense an object of charity, but is entitled to all that he receives by virtue of his rights as a citizen or a member of some special service.

"The governmental care of tuberculous patients in the home" of necessity implies the previous reporting of tuberculosis cases to the government by the attending physician. This measure lies at the very foundation of all governmental care of tuberculosis, and in order to produce noticeable results in the diminution of the disease, notification must be compulsory. So-called voluntary notification is a snare and a delusion. It is the weak link which invalidates the whole chain of precautionary measures. If the authorities are to check the spread of tuberculosis, they must have knowledge of every possible distributing center. Fortunately, the strong prejudice which at first existed against this requirement is breaking down. Physicians are beginning to recognize the fact that they owe a duty to the public as well as to their patients, and that, moreover, the best interests of their patients, as a component part of the body politic, are promoted by this system. The patients, too, are convinced that such reports do not become public property, and that their condition remains a close secret between the government and the physicians, except in the case of the very poor, where governmental interference becomes essential for the protection of the people at large, owing to the unfortunate conditions in which such persons are compelled to live and

their known neglect of all sanitary precautions. But while it must be compulsory in fact, it need not be so in name. There is no occasion for using or parading the word "compulsion." It grates on the American ear, and it is better to avoid it.

In the majority of cases the government will not come into relation with the patient in his home at all. The family physician will be the intermediary. He will use his influence with the patient to have all necessary precautions observed for the protection of the public, and having the confidence, good-will, often even the affection of the patient, he will be able to procure a willing and careful compliance with the official regulations. In this relation the patient who is able to employ a physician need not so much as know that there is a government. Holding these views on the subject of notification, our department has not hesitated to place tuberculosis in the list of diseases of which the report by physicians is obligatory.

Dispensaries.

Where, however, the patient's circumstances are such that it will not be possible for him to procure the nourishment which forms an essential part of the present-day treatment of tuberculosis, it may become the duty of the authorities to furnish the diet, either in whole or in part, as a measure of prophylaxis as well as cure, and the benefit thus conferred will be apt to counteract any feeling of wounded pride that may have been aroused. Such cases come, as a rule, under the head of dispensary patients. While they visit the dispensary at stated intervals and receive precise instructions from the dispensary physician as to the regulation of their daily lives, food, mealtimes, sleeping-rooms, ventilation, clothing, and similar details, the dispensary nurse visits their homes and sees that the instructions of the physician are faithfully observed even in the minutest particulars. The patient is not competent to judge as to the comparative importance of the various precautions, and cannot be trusted, therefore, to dispense with any of them.

Patients may be led, from motives of affection or pity, to share their food (milk and eggs) with others. This cannot be permitted under any circumstances, and the nurse must make this plain to the entire family as well as to the patients themselves. If other members of the family are in want, other methods of relief must be found for them. Too much depends upon the patient's receiving a maximum of nourishing food to permit this part of the treatment to be trifled with.

Patients are made to understand that the continuance of the treatment and of the privileges and advantages which accompany it are dependent upon a careful and conscientious compliance with instructions. A powerful factor in securing such compliance is education. The patients are carefully

instructed as to the nature of their disease and the reason why certain methods are adopted; and, as they will usually find more or less opposition in their homes to the systematic following of the course prescribed, the services of the visiting nurse, who will make it one of her duties to educate the family, and thus assist the patient in his efforts to persist in and patiently carry out instructions, are of the utmost importance.

One admirable method of procuring the coöperation of dispensary patients is the furnishing them with a record book in which they are expected to keep a daily record of hours of sleep, time and character of meals, hours and character of exercise, and their temperature at certain fixed hours. For this latter purpose each patient is furnished with a clinical thermometer. They become greatly interested in the keeping of this record, and it is a matter of rivalry between them to see who can make the best showing in this respect.

In Pennsylvania our dispensary system consists of sixty-seven centers, with a physician in charge and one or more assistants. The physician in charge is, as a rule, the county medical inspector. There are also one or several nurses, according to the density of the population.

The dispensaries are provided with modern instruments of precision, including in the large cities the x-ray apparatus, and apparatus for estimating blood-pressure. Illustrated lectures by the inspectors form a part of the system of instruction of patients. Circulars of information are also, of course, furnished for both patients and their families, and freely distributed. This is a matter which can be intrusted only to persons possessing tact and discretion—the family physician, the dispensary physician, or the trained nurse.

The corps of county medical inspectors is composed of picked men in their several counties, selected with especial reference to their skill in diagnosis and experience in the care of this disease. At least once annually they are convened in one of the large cities, and clinics in the diagnosis and treatment of tuberculosis by the most expert diagnosticians of the State are arranged for their benefit. The whole system is under the supervision of a medical inspector of dispensaries, having his desk in the office of the department in Harrisburg, but spending much of his time in traveling through the State in order to maintain the dispensaries in the highest state of efficiency.

Disinfection.

The seven hundred and thirteen health officers of the department, having jurisdiction in all the extra-urban districts of the State, will be utilized for the careful, scientific disinfection of all apartments vacated by tuberculosis patients either by removal or death. This is one of the grounds on which we insist on the reporting of all cases to the central authority.

Sanatoriums.

The question of sanatoriums is a large one. They naturally divide themselves into service sanatoriums, those which are maintained by some governmental service, as, for instance, the army, navy, or Marine Hospital Service of the United States, for the care of the enlisted men and employees of such service; life insurance sanatoriums, which are found almost exclusively in Germany; State sanatoriums maintained wholly or in part at the expense of the State; municipal sanatoriums, supported by municipalities for the care of cases occurring among their own citizens; philanthropic or denominational sanatoriums established as pure charities, and private or pay sanatoriums, carried on for the sake of pecuniary profit. With the last two classes of sanatoriums we are not concerned.

Tuberculosis farms, colonies, and camps are simply sanatoriums under special conditions.

Inasmuch as the modern treatment of tuberculosis consists primarily in prescribing a routine of daily life in the matter of food, rest, exercise, and open-air life, and is likely to prove successful just in proportion as this routine is strictly followed, governmental supervision of such enterprises, with its thorough system and rigid discipline, evidently presents great advantages. Even the hope of recovery is not always a sufficiently strong motive to induce a patient to force himself to take the necessary amount of food at sufficiently frequent intervals, or to take a perfunctory rest when his inclination is to exercise, or to admit the open air to his bed-chamber when the thermometer nears the zero point.

The regulations of such establishments should not only be strict, but should go much into detail, as it is the little things of daily life that count in this fight. But inasmuch as the conditions of patients vary from day to day, and as varying conditions require modifications of the rules, it is most important that medical supervision should be constant and careful. Even in mild cases every patient in a sanatorium should be seen by a physician every day. Of course, there are certain rules, such as those for the disposal of sputa and other body wastes, which are immutable, but even these may be susceptible of slight change in the manner of their enforcement in accordance with conditions, provided the main object is secured.

While it has unquestionably been demonstrated to the satisfaction of every one that cases of tuberculosis occasionally recover under appropriate treatment in the cities, and without leaving their homes even, yet I think no one will question that removal from the vitiated air of a city to the pure air of a mountain region of moderate altitude, softened by the balsamic exhalations of pine forests, must greatly conduce to the certainty and rapidity

of a cure. A sanatorium for tuberculosis should, therefore, never be established in or close to a city or any considerable center of population.

Inasmuch as the Pennsylvania State South Mountain Sanatorium at Mount Alto is the latest to be established, and circumstances have made it possible to introduce every feature essential to the successful treatment and comfort of the patients, and at the same time have made it imperative to plan its arrangements on a large scale, it will perhaps be pertinent and interesting if I briefly sketch the outlines of this institution.

The sum allotted by the State Legislature to the Department of Health for this object was $600,000. To this must be added a grant of land from a State forestry reservation of not more than five hundred acres on which to place it. On the other hand, something must be deducted for the purchase of a private sanatorium on ground directly adjoining that selected by the Commissioner of Health.

South Mountain is a spur of the Blue Ridge and lies a little south of the fortieth parallel of latitude. The summit is an extensive diversified plateau, having an average altitude of from 1500 to 1600 feet, well wooded, with many forests of pine. It is about ten miles distant from the city of Chambersburg, and has railroad communication as far as the foot of the mountain. The site was originally selected as an appropriate one for such a purpose by the State Forestry Commissioner, and a careful examination of the situation from every possible point of consideration showed that the choice had been an admirable one. The distance from Harrisburg, the capital of the State, is fifty-nine miles. The drive up the mountain over a good road is four miles. The settlement is, therefore, sufficiently isolated to insure quiet and privacy, while by no means difficult of access.

While the law provides for two sanatoriums, it was not considered wise to waste valuable time in seeking for a second location while providing for the immediate reception of patients at the first. Preparations are now so far advanced, however, that this problem will be at once taken up, and a site will be sought in one of the State forestry reservations west of the Allegheny Mountains.

Two thoughts have been kept especially in mind in planning for these institutions—the first, prophylaxis; the second, cure, but cure only as a means of prophylaxis. The relief of suffering is no appropriate or even allowable function of a State. Its only excuse for undertaking work of this kind is that it may conserve lives of value to the State, and prevent illness, which is a drain upon the resources of the commonwealth. When the State steps in to relieve suffering in local communities, unless in some unusual emergency, it is interfering with the rights of such communities to take care of their own poor, and drying up the founts of heaven-inspired charity at their very source.

The first object, then, was to provide for the care of the indigent consumptive in the early stage of the disease, when and when alone it is curable, and before the patient becomes a danger to others. The State government was, therefore, applied to for tents, and in a very short time, availing ourselves also of a number of shacks already on the ground, accommodations were provided for more than a hundred patients. These, however, were only designed for temporary use. The dormitory unit which it is purposed to use is a substantial frame cottage resting on concrete or brick piers, at such a height from the surface of the ground as to insure free ventilation and opportunity for thorough policing.

These cottages are nearly square, measuring 27 by 24 feet, and contain four rooms, each intended to accommodate two patients. There is a central entry or hall, 5 feet 8 inches in width. This hall is enlarged in the center for heating and lavatory purposes, by utilizing the corner spaces of the four rooms. The heating is by stoves with ventilation around the smoke flue. The surface underneath and for a distance of one foot outside is stripped of soil and sod, and filled in with cinders or coarse gravel, solidly rammed down. The cottage is one story high, with an air-space over the ceiling for ventilation. It is so arranged that each room can be thrown open abundantly to the air, with a provision of sliding shutters for protection against violent storms. No eaves or porches which would exclude the sunlight are permitted. The streets are fifty feet wide and the cottages twenty-five feet apart.

After consultation with the astronomer of the University of Pennsylvania, it was decided so to place the cottages that they should face 45 degrees south of west, which insures the sun's rays reaching each face at some period of the day all the year around. The pavilions for rest in common during the day and recreation are of the same substantial construction as the cottages. Each will be 24 by 36 in size and will accommodate twenty-four patients. The openings will be fitted with curtains of striped duck, which will roll up and down with cord and pulley.

The bath-houses, in which only showers and sprays will be used, and toilet houses will be at convenient distances proportioned to the number of patients and employees. A comprehensive system of drainage and sewage disposal has been constructed by which all pollution of the soil and undue dampness will be avoided. It having been recently demonstrated in the laboratory of our department that water into which sewage is allowed to be discharged may be contaminated with tubercle bacilli, an ample sewage purification plant will be interposed between our drainage system and the nearest stream. The water from numerous well-protected springs will be collected in a substantial, carefully guarded reservoir, and distributed over the entire inclosure.

The location of the different clusters of cottages has been determined in

two ways: first, by borings which have indicated the character of the underlying strata and the degree which the soil is saturated with moisture; and, second, by careful topographical surveys, by which have been determined with exactitude the varying levels of the plateaus and the direction of the surface drainage. The sexes will be accommodated on different plateaus about an eighth of a mile apart.

Two distinct camps have been planned, so that patients can be moved from one to the other, thus breaking the monotony of their life and providing that mental stimulus which is often so important a factor in case of invalids who are exiles from their homes. Opportunity for thorough house-cleaning and disinfection will thus also be furnished.

But the checking of the disease in its early stage and the restoration of the individual to a position of usefulness in the community, free from the taint of contagion, is only one of the duties which confront a State sanatorium. There is a large class of consumptives in the latest stage of the affection who constitute a much greater menace to the welfare of the people than those in the early stages. Their domestic circumstances, especially when they become bedridden, are such as to render them a constant danger of the most serious kind. From the point of view of prophylaxis they have an especial claim. But such patients cannot, of course, be cared for in such cottages as we have spoken of. They frequently require attention at night, and neither they nor their nurses can bear the exposure to the air at low temperature which is essential for the recovery of the other class. For these an infirmary must be provided, fitted with every comfort, in which they can end their days in comparative ease, shielded from the pangs of penury and no longer feeling themselves a danger to their loved ones. Such a building is in course of construction, and when completed, we shall be able to discharge our second duty, while at the same time we shall have incidentally the delightful consciousness that we are relieving suffering and alleviating misery. These infirmaries will naturally be placed at a safe distance from the other settlements. In addition to these, provision must also be made for surgical accidents and for intercurrent diseases. For such cases there will be a separate hospital with its own especial equipment.

Apart from the treatment of the sick, however, much can be accomplished by the central health authority in the control of public conveyances, especially of those designed for night travel, the care and disinfection of schoolhouses, the inspection of school children, and the supervision of factories, churches, and places of amusement. With these matters in view the department has been in correspondence and conference with the managers of railroads, boards of education, physicians, clergymen, officers of women's clubs, and large employers of labor throughout the State.

The particular object in seeking the coöperation of the different classes of

leaders of the people at the present time is to secure their aid in making known to those whom the information will most benefit the great opportunities now afforded by our State dispensary system.

Inspección Gubernamental de los Pacientes Tuberculosos en Pennsylvania.—(DIXON.)

Definición del término "gubernamental."

Ventajas de una supervigilancia gubernamental.

Los denuncios de tuberculosos deben ser obligatorios.

Naturaleza del cuidado clínico é inspección.

Valor de las enfermeras en el tratamiento clínico.

Sesenta y siete bien equipados dispensarios en Pennsylvania.

La desinfección atendida por setecientos trece oficiales de Sanidad.

Diferentes clases de profilaxia. Necesidad de una rígida observación de las reglas.

Descripción del "Pennsylvania South Mountain Sanatorium" para tuberculosos en Mont Alto. Arreglos para casos curables ó incipientes. Protección del público. Abastecimiento de agua, saneamiento y cloacas.

Inspección de los vehículos públicos, inspección y desinfección de las escuelas, supervigilancia de las factorías, iglesias y lugares de diversion.

Cooperación de los guías del pueblo ó individuos que se solicitan.

La Contrôle Gouvernemental des Patients Tuberculeux dans la Pensylvanie.—(DIXON.)

Définition du terme "gouvernemental."

Avantage de la surveillance gouvernementale.

La déclaration des cas tuberculeux doit-être obligatoire.

Nature du contrôle et du soin dispensaires.

Valeur des gardes-malades dans le traitement dispensaire.

Soixante-sept dispensaires de première classe.

Le soin de la désinfection entre les mains de sept-cent-treize agents de santé.

Différentes classes de sanatoriums. Importance d'une stricte observance des règlements.

Description du "Pennsylvania South Mountain Sanatorium" pour la tuberculose, à Mont Alto. Arrangements pour les cas nouveaux et curables. Protection du public. Les eaux; drainage et égouttage.

Contrôle des moyens de transports du public, inspection et désinfection des écoles, surveillance des usines, églises et lieux d'amusements.

La coöperation des chefs du people est demandée.

Die staatliche Beaufsichtigung von Tuberkulose-Patienten in Pennsylvania.—(Dixon.)

Erklärung des Wortes "staatlich."

Vorzüge der staatlichen Aufsicht.

Zwangsweises Anmelden von tuberkulösen Fällen.

Art und Controlle der Armenbehandlung in Fürsorgestellen.

Wert der Krankenpflegerinnen in der Fürsorgestellen-Behandlung.

Siebenundsechzig gut ausgestattete Fürsorgestellen in Pennsylvanien.

Desinfektion durch 713 Gesundheitsbeamte.

Verschiedene Klassen von Sanatorien. Notwendigkeit für strenges Befolgen der Regeln.

Beschreibung des Pennsylvania South Mountain Sanatoriums für Schwindsüchtige in Mont Alto. Einrichtungen für beginnende und heilbare Fälle. Schutz des Publikums.

Die Versorgung mit Wasser, Drainage- und Kloakenanlage.

Beaufsichtigung der öffentlichen Transportgelegenheiten. Inspektion und Desinfektion der Schulen, Aufsicht über Fabriken, Kirchen und Vergnügungsplätze.

Mitwirkung der Führer des Volkes ersucht.

DISCUSSION.

Dr. Holton (Vermont): So completely has Dr. Dixon treated the subject of governmental control of tuberculosis that any discussion of the subject must necessarily be simply to emphasize certain portions of it.

The first and most important thing to be done in attempting to stamp out any communicable disease is to have full knowledge of when and where it exists. Attempts to conceal these facts, if successful, will render futile such efforts. We have had for several years in our State a law requiring every physician to report to the secretary of the State Board of Health every case of tuberculosis within one week after it comes under his professional care. A failure to do so is declared to be a misdemeanor and punishable by fine as such. Yet in all this time there has never been a year when there has been half as many cases reported as there have been deaths from this disease. In many instances the family specially request that such reports shall not be made, and in some instances the doctors fear that they may lose their patient if such a report is made, the case going to some other practitioner. In some instances they neglect to report and excuse themselves by saying that they were not sure it was tuberculosis until near the end. Undoubtedly many cases of death are reported as being from marasmus, bronchitis or bronchopneumonia, or chronic diarrhea. In fact, the doctor on

being questioned will admit when such causes are given as resulting in death that possibly it may have been tuberculosis. To correct this we must have different and positive statements in the teachings of our medical colleges, and very much more education for the laity in the importance of a correct diagnosis at the earliest possible moment, as well as a most thorough co-operation in faithfully carrying out the treatment advised.

To secure not only the recovery of the patient, but at the same time to prevent the infection of others, the patient must give his most earnest, continued, and persistent coöperation, and the family must be made to understand that they are not to become weary in well doing, but that they are to be faithful and persistent allies of the physician in prosecuting thoroughly and with great care his every injunction as to the management of the case. The importance of thorough disinfection of the house, and especially of the rooms occupied by the deceased, should be especially emphasized.

It is at this stage of the case that local organizations of women's clubs or sunshine societies, or by whatever names aids may exist, if their members are properly educated and possessed with the missionary spirit of doing good, can come to the aid of the doctor, not with meddling suggestions, but with wisdom born of knowledge, and they may prove to be angels of loving helpfulness to the medical attendant.

The value of sanatoriums for incipient cases cannot be questioned, but the sooner the public recognizes that the advanced cases are the true causes of and real danger to society, and demands of the State that proper hospitals be provided for the care of all such, in order to protect the community from the menace which they are, as well as for humanity's sake to comfort and smooth the last weeks of a life that is gradually fading into the unseen, the sooner shall we reach the goal of our ambition of stamping out tuberculosis.

SOME ECONOMIC ASPECTS OF THE FREE TREATMENT OF TUBERCULOSIS BY THE STATE.

By Rowland G. Hazard,
Peacedale, Rhode Island.

At the opening of the Rhode Island State Sanatorium at Wallum Lake the percentage of free cases was comparatively small (about 20 per cent.). The act creating the establishment authorized the free treatment of those who could not otherwise avail themselves of the advantages of the State Sanatorium. The act further provided that the trustees should fix upon the weekly charge per patient. After comparison made with sanatoriums in other States, the weekly charge was made five dollars per patient, whether male or female. It was known at the time of the fixing of this charge that the State would contribute at least as much more to the support of patients, since it was found that the weekly cost per patient was approximately ten dollars. As time passed the number of patients upon the free list increased regularly, until in the month of March, 1908, or a little over three years after the opening of the sanatorium, the number of pay patients was reduced to about 20 per cent.

The same method of ascertaining the ability of patients to pay—a necessity laid upon the trustees by the conditions of the act—has been in vogue from the beginning. Cases applying for free treatment have been referred without exception to the Providence Society for Organizing Charity, and each case has been looked up with great care, and the full circumstances have been classified on blanks prepared for the purpose, a record of which is kept in the office of the trustees of the sanatorium. Practically it is upon the report of this Society for Organizing Charity that the decision is made as to whether a patient can or cannot afford to pay one-half of the cost, or five dollars, according to the scale of prices set by the trustees.

It has been increasingly evident that free patients can often take care of themselves after discharge when they could not take care of themselves before admission. From this it may be inferred that the care bestowed upon the free patient by the State, together with the cure effected in whole or in part, has reëstablished the credit of the free patient, so that, while incapable of borrowing when he entered the institution in an apparently

moribund condition, he is able, upon leaving the sanatorium, to borrow money from his friends, sometimes in considerable amount. This may be regarded as a natural result of the improvement in his health, which any one can see. No one would think of loaning money as an investment to a person about to die, while some might be willing to lend to a person recovered from an illness, in whose good faith they had confidence.

On the other hand, a question occurs as to whether the average free patient is not disingenuous upon admission. Is it possible that what might be regarded as a burial fund is always or generally reserved by the free patient in order to take care of the possible contingency of his death? If such were the case, the improved condition of health upon discharge might make the recovered or improved patient willing to expend the money reserved as a death fund.

As throwing some light upon the question, we find the case of those patients who have not been improved under free treatment, who, nevertheless are able to continue their own course of treatment at their own expense by removing themselves to a distant climate at the cost of an expensive journey. It is not fair to suppose that these patients have improved their credit, because their physical condition has not materially improved; they may be heavier and they may look better, but it is well known that many cases will not show radical improvement, even after faithfully following the course at an open-air treatment hospital, such as the Rhode Island Sanatorium. This is particularly true of those who arrive too late, in the secondary or even final stages of the disease.

While, therefore, it is possible to build up an ingenious theory that the work of the State in providing free treatment is creative of credit for each improved patient, it appears to be also tolerably certain that no method of inquiry into the ability of patients to pay any part of the cost of their cure will suffice to give the real facts.

In cases where improvement is manifest, and the free patient goes out with the ability to borrow more than equaled by his ability to earn, and to pay off the sum borrowed, is it feasible for the State to expect the return of any part of the money expended for free treatment?

The question is raised as a purely economic one, and not with the expectation that it will be found feasible to put into practice. It would probably be a very unpopular plan, and might interfere seriously with securing patients enough to fill the hospitals. Nevertheless, there would appear to be a chance for the cultivation of one of the higher virtues, that is to say, gratitude, which is at present neglected, by the failure to take from those who apply for free treatment an agreement to repay the State at their leisure such sum as may be expended upon each—such sums as would have been demanded if they had been paying patients in place of free.

Einige ökonomische Ansichten der freien Behandlung der Tuberkulose durch den Staat.—(HAZARD.)

Die Beobachtungen und Schlüsse, welche folgen, gründen sich auf die Zustände in dem Rhode Island Sanatorium in Wallum Lake, Rhode Island, in der nordwestlichen Ecke des Staates, in einer Höhe von 650 Fuss gelegen.

Es ist immer mehr und mehr augenscheinlich, dass Freipatienten für sich selbst nach der Entlassung Sorge tragen können, selbst wenn sie vor der Zulassung es nicht tun konnten. Aus diesem kann man annehmen, dass die Pflege, die der Staat den Freipatienten angedeihen liess, zusammen mit der Heilung, die entweder ganz oder teilweise vor sich gegangen ist, den Credit des Freipatienten wieder hergestellt hat, sodass, während es ihm unmöglich war, Geld zu borgen, als er in einem scheinbaren Sterbezustande in die Anstalt eintrat, er nun nach dem Verlassen der Heilstätte befähigt ist, Geld von seinen Freunden, und sogar manchmal in beträchtlichen Beträgen zu borgen. Dies mag als ein natürliches Ergebnis der Besserung in seiner Gesundheit, welche jedermann sehen kann, betrachtet werden. Niemand würde daran denken, einer sterbenden Person Geld als Anlage zu leihen, während einige willig sein könnten, einer Person, die von einer Krankheit gesundet ist, und zu der sie Vertrauen haben, Geld zu leihen. Andererseits kann die Frage aufkommen, ob der durchschnittliche Freipatient nicht unredlich bei seiner Zulassung ist. Ist es möglich, dass was vielleicht als ein Begräbnisfond betrachtet werden könnte, immer oder gewöhnlich von dem Freipatienten reserviert wird, um für einen eventuellen Todesfall Sorge zu tragen? Wenn solches der Fall wäre, würde der gebesserte Gesundheitszustand nach der Entlassung den Erholten oder Gebesserten willig finden, das Geld, welches als ein Todesfond reserviert war, zu spenden. Um einiges Licht auf die Frage zu werfen, finden wir die Fälle von Kranken, die unter der Freibehandlung sich nicht besserten, die aber nichtsdestoweniger ihren eignen Kurs der Behandlung auf ihre eigne Kosten fortsetzen können, indem sie in ein fernes Klima gehen, trotz der Kosten einer kostspieligen Reise. Man darf nicht mit Recht annehmen, dass diese Patienten ihren Credit verbesserten, weil ihr körperlicher Zustand sich nicht wesentlich gebessert hat.

Sie können schwerer sein, und mögen besser aussehen, aber es ist wohlbekannt, dass viele Fälle keine gründliche Besserung zeigen werden, selbst auch nach einem gewissenhaft absolvierten Kurse in einer Freiluft-Heilstätte, wie zum Beispiel das Rhode Island Sanatorium ist. Dies ist besonders der Fall in denjenigen, die zu spät kommen, in dem secundären oder im letzten Stadium der Krankheit.

Während es daher möglich ist, eine geistreiche Theorie aufzustellen, dass die Arbeit des Staates in der Lieferung von Freibehandlung kredit-

schöpferisch für solche gebesserte Patienten ist, erscheint es auch ziemlich sicher, dass keine Methode der Auskunft über die Fähigkeit des Patienten einen Teil der Kosten ihrer Heilung genügen wird, um die wirklichen Tatsachen zu geben.

In Fällen, wo die Besserung offenbar ist, und der Freipatient weggeht mit der Fähigkeit, mehr Geld zu borgen, als seine Fähigkeit zu verdienen ist, und die geliehene Summe abzuzahlen, ist es denkbar für den Staat die Rückzahlung eines Teiles der Auslagen für die Freibehandlung zu erwarten?

Die Frage wird nur als eine rein ökonomische aufgestellt, und nicht mit der Erwartung, dass sie in der Praxis als wirklich durchführbar gefunden werden kann. Es würde wahrscheinlich ein sehr unpopulärer Plan sein, und könnte ernstlich verhindern, genug Patienten zur Füllung der Hospitäler zu erlangen. Dennoch könnte es erscheinen, dass es eine Gelegenheit für die Kultivierung einer der höheren Tugenden, nämlich der Dankbarkeit, die in der jetzigen Zeit vernachlässigt wird, wenn man von denjenigen, die sich für freie Behandlung melden, keinen Vertrag annimmt, dass sie dem Staate solche Summen, die man auf sie verwendet hat, nach ihrem Belieben zurückzahlen—einen solchen Betrag, der von ihnen verlangt worden wäre, wenn sie anstatt Freipatienten Zahlpatienten gewesen wären.

SOME OF THE NEWER PHASES OF CONSTRUCTION AND MANAGEMENT OF STATE SANATORIUMS AS EXEMPLIFIED BY THE OHIO INSTITUTION.

By Charles O. Probst, M.D.,
Columbus, Ohio.

The construction and management of a State sanatorium for tuberculosis should be determined by the main object of such an institution. Is it to be chiefly curative, custodial, or educational purposes? Take a State like Ohio, with its four and one-half millions of people, and some twenty thousand victims of pulmonary tuberculosis constantly on hand. Consider further that many of its medical men, and only a few of its most intelligent laymen, are just beginning to realize that tuberculosis is curable and preventable, but have not yet accepted, except in a half-hearted way, the conviction that it can be cured at home, and therefore continue to look to other climates for some wonderful healing properties that our own does not possess. With these conditions, if but one institution is provided for, the largest returns will come for the present by treating it as an educational institution—educational for medical men as well as laymen.

Accepting this as its main object, the sanatorium must be planned and managed so as to secure the greatest possible percentage of cures—temporary (arrested cases) and permanent.

Construction.—It goes without saying that the most exacting requirements of sanitation are to be complied with as far as possible in the site selected and in the buildings erected. Soil, water, view, shelter, forest, purity of atmosphere, must all be as nearly ideal for healthful living as possible. The site should also afford possibilities for the healthful occupation of patients. This is one of the newer phases of sanatorium management, and will be referred to later.

In the construction of the buildings, aside from the usual sanitary requirements, the question of pure air and nourishment—probably the two most important factors in phthisiotherapy—should be given special consideration.

Accepting as proved that the purity of the air in inclosed spaces, no matter how ventilated, can never equal that of the air outside, the permanent

arrangements for sleeping can be none other than out-of-doors for practically all cases.

Many think no harm results from taking a patient from her home and plunging her at once into outdoor zero temperatures. Few patients will say that this is a comfortable experience. It may be avoided by having reception cottages for new arrivals, constructed to permit of either indoor or outdoor sleeping. Another advantage of this plan will be referred to in the management of cases.

Milk and eggs, forming such an essential part of the diet of sanatorium patients, should be of the best. Those who appreciate the delicacy of a really fresh-laid egg can understand the advantage of producing your own hen-fruit for patients who must often be given eggs daily for months at a time. There are also many advantages in producing your own milk, as regards taste and purity. Vegetables fresh from your own garden are not only a luxury, but will be partaken of more plentifully. A modern sanatorium, aiming for the highest possible results, should therefore produce its milk, eggs, and vegetables.

The Ohio State Sanatorium has been planned to meet all these requirements. The site of 357 acres of dry, fertile land affords an excellent building location, well sheltered from winter winds. There are 125 acres of woodland, mostly original forest, and three large springs of cool, pure water, sufficient for all purposes. Conditions are favorable for gardening, farming, and horticulture.

The buildings consist of an administration block, which embraces necessary offices, treatment rooms, and officers' living rooms, dining-room, amusement hall, kitchen, and cold storage. The dining-room was given special treatment to make it the pleasantest room possible, with the object to encourage eating. The floor is 87 by 37, with a 29-foot fine raftered ceiling. The sides and front are largely glass. There are special appliances for opening at any angle the four tiers of windows, giving free ventilation. It projects well to the south, affording to every dining table a fine view to the south, east, or west. Special care was taken to protect the dining-room from kitchen odors.

Besides the administration block, now completed, there will be the power plant and laundry, two reception cottages, six sleeping shacks, infirmary, superintendent's residence and employees' cottage, with necessary farm buildings. There may be some criticism for building such an expensive institution. The administration block and power plant will alone cost a quarter of a million of dollars; the other parts are of comparatively cheap construction. The former are the essential elements of any State institution; and it is at least possible that the State may hereafter decide to abandon the sanatorium idea, finding other more effective and more economical

methods for combating tuberculosis. In that case there will be little loss in converting the sanatorium into some other more needed State institution.

Management of Cases.—The act governing the administration of patients had in view some newer phases of the management of cases, as well as the central object of the sanatorium, *i. e.*, to serve as an educational institution. In the first place, the number of patients has been limited by the size of the dining-room and other features of construction. The total capacity is 200. This will permit of greater individualism in the treatment of cases and make less liable routine methods—the bane of public institutions.

Only early, favorable cases will be received. Furthermore, as cases apparently favorable may soon prove to be unsuitable for sanatorium treatment, all patients are to be received on four weeks' probation. They will not be regularly admitted, nor figure in the records of cases, until after a four weeks' trial. This should insure a select class of patients and a high percentage of favorable results. There may be the danger in this of arousing a doubt in the minds of those who do not understand incipient tuberculosis as to whether those reported cured really had the disease. With the improved methods of diagnosing early tuberculosis now available, this danger should be easily avoided.

The reception cottage plan is new, though not original. There is a first and second story of single rooms facing south, or nearly so, with a corridor behind and a sleeping veranda in front. A wide door permits the bed to be rolled to the veranda. The rooms may be moderately heated, and have, by doors and windows, the freest possible cross-ventilation. All probation patients come to the reception cottages, and may sleep indoors or outdoors. There is thus an opportunity for acclimatization in very cold weather. The reception cottages, male and female, are next to the administration block, so that new patients may be under close medical supervision.

After the four weeks' observation period, or sooner, if desirable, patients will be transferred to the sleeping shacks, where all must sleep outdoors. These are for twenty patients. They are one story, with two sleeping porches separated by an assembly room, back of which are the dressing-room, lavatory, and attendant's room. Each shack will have an attendant, who will sleep there at night.

In the lavatory is a small dressing-room for each patient, with a wardrobe, open to the air, for hanging clothing. There are in each shack 4 shower-baths, a water-closet, 8 lavatory bowls, a jet drinking-water fountain, thus avoiding a common cup, and a special bowl for cleansing the mouth and teeth. The lavatory and dressing-rooms will be comfortably heated, but well ventilated. A patient on arising in the morning has but a few steps to take to find himself in a comfortably warm place. He can take a shower-bath, and

in his dressing-room, in perfect privacy, put on his day garments. At night the order will be reversed. He will undress in a warm room, hang his day clothing in a well-aired wardrobe, and step into his bed. Electrical bed-warmers are available for those who may need them.

An infirmary, or hospital, is treated, in a general way, like the reception cottages; that is, with single rooms and a veranda, so as to permit of either indoor or outdoor sleeping. It has its own dining-room and diet kitchen and an operating room. It is located in a sheltered place, out of the road of travel, so that those actually ill may not be seen by the others.

It is the experience of many State sanatoriums that the best class of patients, those that have the brightest prospect of cure, are not easily secured, and are hard to retain a sufficient length of time for lasting results. It has been found, furthermore, that there is a large percentage of relapses among sanatorium patients who, after too short a stay, return to unsanitary and unhygienic surroundings, and often, in addition, to unhealthful occupations. There is danger, also, with a certain class of sanatorium patients who gain a living by muscular labor, that with a six months' stay with nothing to do they will either become work-shy and shiftless, or, on the other hand, of such reduced musculature that they easily break down on attempting to take up actively their former occupation.

These problems are pressing upon all those engaged in sanatorium work. To help solve them the following provisions have been made for the management of the Ohio sanatorium.

In the first place, a charge of $5 per week is made for each patient. This will exclude an undesirable class, from an economical standpoint, who should be cared for in other institutions.

It may be stated, parenthetically, that Ohio has recently provided for a hospital for tuberculosis in each county, of which there are eighty-eight, for the care of patients who are not suitable cases for the sanatorium. These are free, but $3 a week, or any less sum the directors may determine in individual cases, may be demanded from those able to pay the charge in whole or in part.

To provide for the admission to the State sanatorium of suitable worthy cases who are unable to pay the weekly charge, the managers may accept any sum less than five dollars per week that they may see fit for 10 per cent. of the total number admitted.

To induce patients to remain long enough to secure the best results of treatment; to harden them so that they may return to former occupations with the least detriment; and, further, to teach patients occupations to enable them to gain a livelihood out-of-doors, the trustees of the sanatorium are authorized to provide suitable outdoor employment, and to pay patients not to exceed $5 per week for their labor. The medical superintendent will

have full control, and will determine the quantity and quality of work each patient may do.

This arrangement will permit of at least 10 per cent. of the patients gaining entrance to the sanatorium free of charge, and of earning something like $5 per week during most of their stay. This, it is hoped, will help solve the vexed problem of supporting the family during a good part of the time the breadwinner is "making his cure," and thereby induce him to stay longer. It may also help solve that other problem of teaching patients how to make a living at some new, healthful occupation, and prevent many from returning to those conditions which so often cause their disease to be lighted up again.

To summarize:

Ohio is providing a small institution, the main object of which is educational.

This is located upon large, healthful, and fertile grounds.

Only favorable cases will be received, and these upon four weeks' trial.

Reception cottages receive new patients, and these are arranged to insure their close medical supervision, and to permit of either indoor or outdoor sleeping.

Special provision will be made for the employment of patients, for which they will be paid.

Cases unsuited for sanatorium treatment are to be cared for in county hospitals.

Algunas Nuevas Fazes en la Construcción y Manejo de los Sanatorios, Demostradas por el Instituto de Ohio.—(PROBST.)

El Sanatorio del Estado de Ohio ha sido construido como una institución de educación. Es para enseñar al médico de la familia, y por medio de él á los profanos, que la tuberculosis puede curarse en casa, y cuál es el mejor medio para ello. Un alto percentage de curas permanentes llenan el objeto mejor. A este fin, solo se reciben casos favorables, elejidos, y estarán bajo prueba por un petíodo de cuatro semanas.

Vida exterior, día y noche, es requerida: solo dos casas de campo con cuartos y colgadizas para dormir, reciben los pacientes á prueba y permiten un cambio gradual á una completa existencia en el exterior.

Para acostumbrar al paciente á la vida después del sanatorio y ayudar una cura permanents é inducirlos á permanencer tiempo bastante para obtener resultados, se los provee de empleo á propósito por el cual debe pagársele cinco dollars por semana.

La alimentación no secundaria respecto ningun otro factor de cura. Para alentar la alimentación el comedor, en localización (exterior), construc-

ción (luz, ventilación), proporciones y muebles, se ha hecho la chef d'oeuvre. El huerto, (357 acres) suplirá leche, huevos, aves y vegetales, frescos y por tanto agradables.

El médico superintendente tendrá la inspección suprema de la institución, los pacientes y otros oficiales y empleados.

Quelques unes des plus récentes innovations dans la construction et l'administration des Sanatoria illustrés par une institution de ce genre dans l'Ohio.—(PROBST.)

On construit le Sanatorium de l'Etat d'Ohio pour servir d'institution d'éducation. C'est pour enseigner au médecin de famille et, par lui, au public, que la tuberculose peut être guérie à la maison et les meilleurs moyens de le faire. Le meilleur moyen d'atteindre cet objet est de montrer une proportion élevée de cures permanentes. Dans ce but on ne recevra dans le Sanatorium que des cas choisis, favorables et ces cas seront recus quatre semaines à l'essai.

Les malades devront vivre en plein air jour et nuit; mais on a bâti deux villas de reception avec des chambres et des vérandas pour dormir, pour recevoir les malades qui sont admis à l'essai et leur permettre de changer graduellement et de s'habituer á l'existence en plein air.

Pour préparer les malades à la vie qu'ils devront mener après avoir quitté le Sanatorium, pour assurer une cure permanente et pour les encourager à rester assez longtemps pour obtenir des résultats, on a pourvu des occupations en plein air convenables, pour lesquelles on peut leur payer cinq dollars par semaine.

La nourriture est un facteur d'une importance suprême. Pour encourager l'appétit des malades, on a fait un véritable chef d'œuvre de la salle á manger par sa location (vue), sa construction (lumiére, ventilation), ses proportions et son ameublement. La ferme (357 arpents) doit fournir le lait, les œufs, la volaille et les légumes, le tout frais et par conséquent appétissant.

Le directeur médical aura le contrôle suprême de l'institution, des malades et autres fonctionnaires et employés.

Einige der neueren Erscheinungen in der Construction und Leitung von Sanatorien, wie sie sich bei der Institution in Ohio zeigen.—(PROBST.)

Das Ohio Staats-Sanatorium wird als eine Erziehungsanstalt gebaut. Es soll den Hausarzt und durch ihn die Laienwelt lehren, dass Tuberkulose zu Hause geheilt werden kann, und wie dies am besten durchzuführen ist.

Ein hoher Prozentsatz von vollständigen Heilungen wird diesen Zweck am besten erreichen. Um dies zu erreichen, werden nur ausgewählte, günstige Fälle aufgenommen, und sie werden einer vierwöchentlichen Probezeit unterliegen.

Es ist dafür gesorgt, dass sie Tag und Nacht im Freien sind, aber zwei Aufnahmehütten mit Zimmern und Schlafveranden werden Patienten auf Probezeit aufnehmen und eine stufenweise Veränderung für das Leben im Freien vorbereiten.

Um Patienten für das Leben nach dem Sanatorium geeignet zu machen, um eine dauernde Heilung zu fördern und sie zu veranlassen, lange genug zur Erreichung der Resultate zu verbleiben, wird eine passende Einrichtung für das Leben im Freien vorgesehen werden, wofür fünf Dollars per Woche gezahlt werden dürften. Die Ernährung ist nicht weniger wichtig als irgend ein anderer Factor in der Heilung. Um das Essen anzuregen, ist das Speisezimmer in Bezug auf Lage (Ausblick), Construction (Licht, Ventilation), Grössenverhältnissen und Möblirung zum "chef d'œuvre" gemacht worden. Der Grundbesitz (357 Acker) dient der Versorgung mit Milch, Eiern, Gemüsen, und Geflügel, die frisch und daher wohlschmeckend sind.

Der ärztliche Leiter wird entscheidendes Verfügungsrecht über die Anstalt, Patienten, anderen Beamten und Angestellten haben.

THE FUNCTION OF MUNICIPAL GOVERNMENTS IN LICENSING PRIVATE SANATORIUMS FOR TUBERCULOSIS.

By Herbert C. Clapp, M.D.,
Boston. Consulting Physician to the Massachusetts State Sanatorium at Rutland.

The sanatorium for the treatment of tuberculosis has now thoroughly proved its raison d'être, and has evidently come to stay. Within the last few years the number of them, both public (or semi-public) and private, has very greatly increased all over the civilized world, especially in Germany, the land of their birth. In our own country the national government is conducting sanatoriums for soldiers and sailors, and one State after another has fallen into line in establishing them at the public expense, or in taking the preliminary steps. Nobody doubts that in the near future every State in our union will have at least one. They are not perfect; they do not cure every patient; but still they do a splendid work, and if physicians and the people could only be aroused to the importance of sending cases early enough, the results would be truly wonderful, especially in comparison with the results of treatment by other means only a few years ago.

No matter how rapid the increase, however, sanatoriums never will accommodate more than a fraction of the consumptive population, for various reasons, and the majority of these patients must be treated on sanatorium principles at home. And yet those for whom the sanatorium is a necessity should not be deprived of its privileges. There now seems to be a good prospect that before very long there will be a fair number of State or private sanatoriums for those of the poor or in very moderate circumstances who can and will go to them; but in this country, or in most parts of it, at any rate, certainly in comparison with many places abroad, there seems to be a great lack of private sanatorium accommodation for people in good circumstances, who can afford and desire to pay in full for what they get. For this lack, it would seem, there are many causes, some of which will be mentioned later. The inhibiting cause, which particularly concerns us just now, is the present common method of licensing private sanatoriums, which adds to the many other obstacles (arising from natural causes) to the organization of such sanatoriums, one which is often insuperable and practically prohibitive.

Now the common custom is, where there is any law on such matters at all, for the city or town (the municipality), either openly to license or negatively and tacitly to allow to exist, the place where the patients live, whether the number of these patients is one, two, twenty, or thirty. This method, in my opinion, ought to be changed, and the licensing power given to the State, unless some better way of accomplishing the same results can be suggested, in which case it will cheerfully be substituted in this place.

Those who have not thought much about the subject may find it hard to realize that the obstacles arising from natural causes, above referred to, can be at all serious. These people perhaps call to mind the very numerous private institutions for nervous and some other diseases, and for alcohol and drug addictions, thickly scattered through our country, which seem to be prosperous, because well supported by people of means. Why should not similar places for the tuberculous prosper financially? Here are some of the reasons:

The natural demands of those who expect to pay a good price are many and exacting, and require the expenditure of considerable money. Some of the requirements of a first-class private sanatorium for those in good circumstances may be summed up as follows:

1. At the head must be a good man for the purpose. He should be a tuberculosis expert, a man of education, experience, and reputation, who can command the confidence of his fellow-physicians and of the community. He should not try to make up his lack in these qualifications by any amount of assurance.

2. A good location is important. Although we now know that people can get well almost anywhere, even in a big city, if they are made to live rightly, yet there are certain things that are desirable, if a person can get them and is able to pay for them.

A sanatorium for such should by good rights be out of a city far enough to secure ample grounds, as well as to make it a little difficult for all of the patient's friends to visit him too often, and also far enough off to have the proper seclusion, so that the patient, when "sitting out," does not have the awkward feeling of being on exhibition. And yet it should not be so far out as to make the necessary travel burdensome to the patient and his friends, and to those connected with the place. In other words, it should be easily accessible and not at too great a distance from a railroad station.

If possible, it should be on a hillside, sloping to the south, to get the maximum of sunshine and to be protected from the most trying winds. Altitude is not essential, but as some people think it is, it may be demanded. People have been known also to get well without beautiful scenery, but nevertheless a fine view is an inspiration, and in my opinion a not unimportant therapeutic adjunct.

3. Such a place as has been partly described is very apt to be so situated that no town water system is available; in which case a private and independent water system has to be installed, as well as a modern system for the disposal of sewage, both of which are expensive.

4. For the treatment of nervous or many other diseases a building erected for ordinary purposes can often be made to answer; but for a tuberculosis sanatorium, even of small size, certain modifications are desirable, especially in warm weather or in warm climates. It is not now considered necessary to go into the extravagances of construction which were at first advocated, and for large public sanatoriums for the poor, cheap modifications of the Loomis lean-to shacks can be used. Much more elaborate construction of these, however, would be necessary for people who pay a good price, and some of these people would be satisfied with nothing less than luxurious buildings patterned after the unique "Cragmore" style, having specially constructed private rooms with individual sleeping porches attached, as designed by the late Dr. Solly, or the beautifully planned Reception Hospital at Saranac Lake, with its ingenious facilities for pushing each bed from its bedroom out on its individual porch in suitable weather. Of course, additional buildings for other than sleeping purposes will have to be provided.

5. Notoriously many people are fastidious about their food, but this problem, although real, is one that is always to be expected by people who feed outsiders.

6. Proper amusements and occupations have to be provided for the patients, which involves no little care-taking and extra thought.

7. Until lately, for so many years it has been customary and fashionable to send patients from most other parts of our country to Colorado, southern California, or other health resorts, that in many people the idea has become inherent that those are the only places where the disease can be cured. This positive opinion has been considerably shaken by the unmistakable facts as to the recovery in large numbers of consumptives near their own homes. But still the old idea was so firmly rooted that some hesitate about trying the experiment here, if they can possibly get away, or about continuing here after the first setback, which might have happened in any other part of the world. This feature presents an element of uncertainty to one who is trying to forecast the future as to the likelihood of keeping his institution full.

8. A sanatorium physician is naturally dependent, to a large extent, in keeping his place filled, on the recommendations of his fellow-physicians to their patients and friends. In some cases these physicians are glad to recommend; but in others they see no reason why they themselves cannot properly treat such patients in the patients' own homes by sanatorium methods. They may be competent to do so, or they may not, but in either

case they are willing to reap the pecuniary rewards for so doing. Some patients can be thus treated very successfully by a physician who understands the work thoroughly, and some cannot be so treated. Again, some physicians who have heard only enthusiastic tales of remarkable recoveries fail to recognize the limitations of the new treatment, and quickly become discouraged if their patients do not uniformly make good progress, and then at once urge them to make a change. These are some of the discouragements to be expected from the profession.

9. If a carefully managed private charitable sanatorium finds its expenses overrunning its receipts, all that is necessary to do is to make an appeal to the public for financial aid. This cannot be done with the kind of sanatorium now under consideration. It is supposed to be a business enterprise. Neither can its originator expect to get it endowed for the same reason. And if he were lucky enough to secure a substantial endowment, would the well-to-do patient be willing to take advantage of such assistance, which would really make the institution to that extent a charitable one?

10. Another thing that might make such an investment more or less risky is the fact that so many fads are prevalent. People are fickle. To-day one method of treatment appeals to them, to-morrow another. Whether the method has any merit or not, it does not matter. If the people are persuaded that it does, that fact is sufficient to influence in favor of or against any sanatorium. Then, again, many consumptives are, or become, chronic rovers, as every one knows. They go to one place, convinced that it will cure them. In a short time they are discouraged and think they have made a mistake, and go to another, and so on.

All these ten "obstacles," and others which might be mentioned, show that it is expensive to organize and run a private pay-sanatorium, and that the enterprise involves not a little risk. It takes much money even to rival what can be got at a good State institution, where patients can go for little or nothing. Massachusetts, for instance, has economically spent considerably over half a million dollars already on its sanatorium equipment, to which it is constantly adding.

The License.

It is not claimed that these obstacles are insuperable, however. So far as they go, a manager with executive ability might calculate and plan in advance, as well perhaps as for some other novel enterprises, making due allowance for his risk, and charging a price big enough to cover all probable shortages, provided that price does not seem prohibitive.

Even then, if on this basis a careful figuring of profit and loss should show the enterprise to be fairly sound, another problem has to be dealt with, which may nullify the whole project, and that is the license. If the authorities

of the municipality (as they may and often do) absolutely refuse to grant it, nothing more can be done. If they refuse as to the desirable plan selected, but are willing to grant a license for a location which is inappropriate, it about amounts to the same thing. If they are favorably impressed and grant the license for the desired location, and the land is bought and improved, the buildings constructed, and everything put in order at great expense, and patients received for a while, and then as a result of some popular agitation the authorities have local pressure enough brought to bear on them to make it expedient for them to change their views, they have the power to revoke the license and put the sanatorium out of business. What can the owners of it then do? They have an elephant on their hands. If the buildings have been constructed on modern tuberculosis sanatorium principles, it would be exceedingly hard, if not impossible, to find any other practical use for them, and they might easily become a dead loss, unless they were almost entirely remodeled at great expense. Even then the fact that they had been used for tuberculosis would "hoodoo" them. Nothing can be done but to sell the whole property at a ruinous sacrifice. Who can afford to run such risks as these, while trying to conduct a sanatorium on business principles, not with the object of making a fortune, but simply of earning a modest livelihood? If the sanatorium in such a case were not a business, but a charitable enterprise, it would be sad waste of money contributed by many good people; but a private organizer, unless he had a large capital back of him, could easily be swamped.

Why should the city or town authorities refuse to license an enterprise which promises to bring money into the town, or why should they revoke a license once granted? The principal reason, expressed in one word, is phthisiophobia.

A great many people are willing that consumptives should be treated, but not near them; for, like the lepers, they are unclean. They do not know or realize that a careful consumptive is no menace to the public health. In their fright and selfishness they urgently appeal to the town authorities to refuse the license, and to this end bring to bear on them influences of relationship, friendship, business, politics, religion, or what not. It is a hard place for the town officers to put in, supposing they are honest, conscientious, kindly, and well posted on the subject. Nor are they always so well endowed: sometimes they have a good deal of human nature in them, and sometimes they are phthisiophobée themselves. No wonder, then, that, as a matter of fact, licenses are often refused. Every one knows that the great majority of hotels discriminate against consumptives at summer or winter health resorts, and that strong efforts have been made in California and Colorado and other places to keep the unfortunates out of the States.

As a single instance of how such questions are often decided, not on their

own merits, but by politics and influence alone, a few years ago the Cullis Free Home for Consumptives at Grove Hall, occupying several acres of land, one of the oldest and best of our worthy private charities in Boston, where many hundreds of advanced consumptives have been cared for and have died in comparative comfort, and through which the city has been saved much money, was brought before the Board of Aldermen on a charge of being a menace to the health of the community. The principal witnesses against it were large real-estate men, who had interests in the immediate vicinity which they wanted to develop by cutting through streets and selling lots at high prices, as it was a rapidly growing section of the city, and the presence of a consumptives' home depreciated the desirability of such lots. After several largely attended and exciting hearings it was decided by a strictly political party vote, 7 Democrats to 6 Republicans, that the home be allowed to stay, and need not move to distant parts. A very narrow escape. In addition to the benefits to the recipients of its charity, this home, by segregating so many in the last stages of the disease, must have done a great deal to prevent its spread among others.

Only this year the Massachusetts Tuberculosis Commissioners, to whom is intrusted the task of building three new State hospitals for consumptives, decided to build one of them in the little town of Georgetown. When this became known, the town was up in arms as one man, and a storm of protest was aroused and expressed at public meetings. No private sanatorium could have stood against such opposition. As everybody knows, New York has encountered great difficulties in the establishment of sanatoriums by the opposition of individuals and communities. And yet it has been demonstrated repeatedly that, in the regions immediately surrounding good sanatoriums, there is actually less, rather than more, of the disease, on account of the good influence of their example.

Now, as to the remedy. In this case, as in some others, it is easier to recognize the trouble than to cure it. Any new scheme must probably be to a large extent tentative. First, we must all recognize the desirability of having numerous private sanatoriums in our midst for people of means. Such people should not be compelled to be ostracized any more than the poor, if they choose to get well near home. Many now are improving either in their own homes or in the homes of others better situated for the purpose; but some want and need also the detailed care of a sanatorium. Besides, such care is a part of the big campaign against tuberculosis which is now beginning to be waged, and to absorb so much of the public attention in the laudable endeavor to stamp out this dread disease.

Granting this, it follows that such legislation is desirable as shall encourage, or at any rate not obstruct, the organization of such sanatoriums. The State should grant the license instead of the municipality. A State

officer, ex officio, has a wider range of vision and an ability to decide such questions with greater fairness and justice to all. He is naturally free from local prejudice, and less liable to be influenced by personal considerations than a town officer in his own town. The latter is "John," and the man who lives next to the place which is desired for a sanatorium, and who is violently opposed to it for fear of catching the disease, is his old chum "Bill," who married his sister. "Now, John, you wouldn't let your own sister be exposed to danger, would you?" And John is won, perhaps against his better judgment, on account of personal considerations.

A man in a country town who as a sheriff has to arrest his old boyhood friend for crime, and does his duty, must be almost as much of a Spartan as a judge on the bench sentencing his own boy. Human nature is weak, and we ought not to put it to too great a test. If a man is accused of a heinous crime, and the populace is excited almost to the point of mobbing him, he sometimes can be tried in another county, where the public feeling may be calmer and fairer.

If the State has the licensing power, by whom shall it be exercised?

Looking for an analogy, if a physician in Massachusetts desires to open a private hospital for the care of insane and nervous patients, he makes written application to the governor for a license, and the governor grants it, after having consulted the State Board of Insanity. For the past four years this board has refused to recommend the granting of this license unless the physician who applies has had a hospital experience.

The licensing of a tuberculosis sanatorium might be granted by the governor after consultation with the State Tuberculosis Commissioners or the board of trustees in charge of the State sanatorium. Or, from another point of view, the State Board of Health might form the advisory council. If the licensing power should still continue to be vested in the local board of health, it would seem to be exceedingly important, in case of their refusal to license, to allow the applicant the privilege of appeal to the State Board of Health; and in fairness the same privilege might be granted to the opposition to the license, in case it should be granted by the local board. At any rate, it ought not be made too difficult for educated and honorable physicians to get licenses, on presentation of the proper credentials. The licensing power should be particularly careful not to yield to the protestations of opposing neighbors, if the general good of the community seems likely to be promoted. In cases of conflict the State ought to override the municipality, as Massachusetts did recently, in another line, in the case of Fall River. The latter city, although large, had no contagious hospital, and seemed disinclined to build one, until the persuasions of the State were effectual; and now, as a result, very handsome plans are shown.

The question may arise. What constitutes a sanatorium? How few

patients could a place of this kind have, and yet be entitled to the name? Could it be a sanatorium, and yet have only one patient? or two? As it is now, in States or cities when by law a physician must "notify" the board of health when he finds a patient has tuberculosis, just as he would if it were scarlet fever, the board of health, on his report, virtually licenses his treatment of the case. If he had two or three patients (perhaps relatives) with the same disease in the same house, would this constitute a sanatorium and require a different license? It seems hardly necessary to take such a question seriously. Nor is it necessary to record minutely all the close and nice distinctions which might theoretically be made. It can safely be left to the common sense of the community. When (if ever) embarrassing situations arise, then it will be time enough to define and to further register accordingly.

On account of the many difficulties to be overcome, there will probably never be a large number of private pay-sanatoriums for the well-to-do, no matter how easy the road is made by the authorities. It does not appeal to the money-makers, and a manager may consider himself fortunate if he makes both ends meet.

But there probably will be a great field open for private charitable sanatoriums. There is a limit to the public ones, and none of them ought to be too large and unwieldy. Many people are clannish, and desire to flock together by themselves. The Jews especially are likely to want their own. The Baptists, Methodists, Episcopalians, Presbyterians, or the Masons and Odd Fellows may have a gregarious feeling come over them. If so, they ought to be encouraged. It is one more battle in the big campaign against tuberculosis, and each effort of this kind helps to educate a different part of the body politic. After all, education of the public is the only effective means against this miserable phthisiophobia, which in one way or another often works almost as much hardship as ignorance of the communicability of the disease. In such a matter as we are now considering, however, education alone is not sufficient. Legal measures are also necessary, because knowing the right is not always equivalent to doing the right, when self-interest intrudes itself.

A certain German town, which Dr. Knopf tells about, was educated sufficiently to allow the presence of sanatoriums for the treatment of wealthy patients. A lung specialist, of wide reputation, desired to establish there a sanatorium for the poor. The townsmen refused to allow it, thinking that its presence would drive off their rich patients, and so he established it elsewhere. But the rich patients, arguing that there must be some special and remarkable efficacy in the air of the town selected by such a celebrated man, abandoned their original location and flocked to the new town. If in

this case the licensing power had been in the State instead of the town, the course of events might have been different.

No matter by whom licensed, every private sanatorium, whether charitable or organized as an investment, should be inspected by the proper authorities at regular intervals.

La Función de los Gobiernos Municipales en la Licensia de Sanatorios Privados Para Tuberculosis.—(CLAPP.)

Aunque los sanatorios públicos de caridad para los tuberculosos se multiplican rapidamente, en los Estados Unidos existen muy pocos sanatorios para la tuberculosos que tienen recursos suficientes para la vida. Existen muchas razones naturales las cuales impiden, bajo un punto de vista financiero, el aventurar la construcción de éstos; mas el mayor obstáculo entre todos es la muy infortunada *tisiofobia*, tan prevalente al presente, lo cual da por concecuencia que las mesas locales de salud, (cuando estás tienen poder) negan la licensia. Esto pudiera ser en parte remediado si el Estado en vez de la municipalidad, tuviera a cargo el poder de licenciar. Un oficial del Estado tiene un campo de vista mas ampleo y poseé mayor abilidad para decidir con imparcialidad tales asuntos. El naturalmente está mas libre de las intrigas locales y menos sujeto a las concideraciones personales á las cuales estan expuestos los jefes locales en su propia ciudad. La licencia puede ser dada por el Gobernador del Estado después de haber este consultado con la Comisión sobre Tuberculosis del Estado ó con la comisión a cargo de los Sanatorios del Estado: ó bien la Mesa de Salud puede actar en la capacidad de consejero. Tal mesa deberá ser una Mesa de Apelación, a lo menos, si bien las autoridades locales retienen el poder de la licencia en la primer instancia.

A todo trance, sinembargo, sea cual fuere el plan, no debiera ofrecersele obstaculos á las personas responsables en el procuramiento de una licencia para establecer tales instituciones, antes bien debiera ayudarseles en vista del bien que éllas hacen, y también bor la educación pública; una educación del público es la mejor corrección que puede hacerse contra la tisiofobia.

Fonction du gouvernement municipal pour licencier le sanatorium privé pour la tuberculose.—(CLAPP.)

Bien que les sanatoriums publics de charité pour les tuberculeux se multiplient rapidement, il n'y a dans les États-Unis que peu de sanatoriums

pour les tuberculeux riches. Il y a beaucoup de raisons naturelles pour ne par courir le risque d'en établir un si l'on considère comme il présente peu d'avantages financiers. Mais le plus grand obstacle de tous est cette infortunée *phthisiphobie* qui règne partout maintenant et dont le résultat est si souvent que les bureaux de santé locaux refusent de les licencier, alors qu'ils en ont le pouvoir. Ceci pourrait être remédié en partie si l'état, plutôt que la municipalité, exerçait le pouvoir de licencier. Un fonctionnaire de l'état (ex officio) a un point de vue plus large et une capacité plus grande pour décider des questions de ce genre avec plus de justice et d'impartialité pour tous. Il est naturellement plus débarrassé des préju sous locaux et moins l'influence de considérations personnelles qu'un fonctionnaire municipal dans sa propre ville. La licence pourrait être accordée par le Gouverneur de l'État après avoir consulté la Commission de l'État contre la Tuberculose, ou le Conseil d'Administration chargé du Sanatorium de l'État ou le Bureau de Santé de l'État pourrait être consulté. Ce Bureau devrait être un tribunal d'appel tout au moins, même si les autorités locales retenaient le pouvoir de licencier en première instance. En tous cas, quel que soit l'arrangement choisi, il devrait être facile pour les personnes compétentes d'obtenir une licence pour établir ces institutions qui devraient être encouragées pour le bien direct qu'elles font, et aussi pour instruire le public, car l'éducation du public est le meilleur remède contre la tuberculose.

Über die Function der Stadtverwaltung bei Genehmigung von Privatheilanstalten für Tuberkulöse.—(CLAPP.)

Obzwar die Zahl von wohlthätigen, öffentlichen Heilanstalten für Tuberkulöse stets zunimmt, so giebt es doch in den Vereinigten Staaten sehr wenige solche Anstalten für wohlhabende Kranke. Es giebt viele natürliche Ursachen, weshalb es vom finanziellen Standpunkte aus so wenig verlockend ist, das Risiko der Gründung einer solchen Anstalt zu übernehmen. Das allergrösste Hindernis ist indess die gegenwärtig leider so vorherrschende *Phthisiophobie*, welche oft die Veranlassung ist, dass die localen Gesundheitsbehörden (wo dieselben das Recht dazu haben) die Genehmigung zur Gründung einer solchen Anstalt verweigern. Dem könnte theilweise abgeholfen werden, wenn anstatt der städtischen Verwaltung die Befugniss zu derartigen Genehmigungen dem Staate überlassen bleiben würde. Ein Staatsbeamter kann (ex officio) das Feld weiter übersehen und vermag in solchen Fragen besser zu entscheiden, und jedem Recht und Gerechtigkeit angedeihn sein lassen. Ein Staatsbeamter ist natürlicher Weise freier von örtlicher Voreingenommenheit und wird weniger von persönlichen Rück-

sichten beeinflusst, als ein städtischer Beamter in seiner eigenen Stadt. Die Genehmigung könnte von der Verwaltung des Staates, nach Berathung mit der Staatscommission für Tuberkulose, oder mit dem Verwaltungsrath der staatlichen Heilanstalt, ertheilt werden. Eventuell könnte auch das Staats-Gesundheitsamt als berathende Körperschaft dienen. Es sollte wenigstens eine solche Körperschaft als Berufungsinstanz vorhanden sein, wenn auch die Localbehörden die Befugniss, Genehmigung zu ertheilen, in erster Linie behalten sollten. Mag der eine oder der andere Plan gewählt werden, so sollte es auf jeden Fall mit keinen Schwierigkeiten verknüpft sein, für die geeignete Person eine Genehmigung zur Eröffnung einer solchen Anstalt zu erlangen. Solche Unternehmungen sollten im Gegentheil ermuntert werden, in Anbetracht des guten, welches sie direct verursachen und auch zur Erziehung des Volkes beitragen. Die Erziehung des Volkes ist das beste Mittel gegen die Phthisiophobie.

SECTION VI.

State and Municipal Control of Tuberculosis (*Continued*).

SIXTH SESSION.

Thursday Morning, October 1, 1908.

Section VI was called to order by the President, Surgeon General Walter Wyman, on Thursday morning, October 1st, at half-past nine o'clock.

AN ASPECT OF THE EVOLUTION OF THE STATE IN ITS RELATIONSHIP TO TUBERCULOSIS.

A PLEA FOR NATIONAL HEALTH DEPARTMENTS.

By F. G. Bushnell,
London.

The State, its ministers and officers, as the representatives and leaders of a nation's life and thought and actions, are in touch with many of the problems which lie at the root of tuberculosis. Among them, the one with which my work familiarizes me above others is the application of laboratory procedures to public health measures.

The subject of the development, coördination, and ultimate perfection of such an applied scientific system as bacteriological and pathological examinations to the national need follows naturally; and, in sequence, this suggests certain general reflections as to the public health service as it exists, without which the structure would appear incomplete.

There seems to be little need to argue in this presence the desirability of the establishment, equipment, and proper maintenance of laboratories for the study of the causes, and as an aid in the prevention, of transmissible diseases of men and animals. The fact is, however, that wide gaps exist in most national bacteriological systems, and no country, no county, no uni-

versity, no city, no hospital, can keep abreast of the march of progress unless it is provided with suitable laboratories and appliances for scientific work; neither can they even carry out their work efficiently.

The discoveries of Koch, Pasteur, and Lister in the last century have had such a profound influence upon the comfort, health, and welfare of people in general that there is a wide-spread, if inadequate, appreciation of the value of scientific investigation. It is to this we owe in Great Britain, and, as I believe, in America, the pecuniary resources we have for scientific progress, but the State is taking more and more its proper share in what has been termed the "socialization of medicine." Enthusiasts go so far as to profess that the medicine of the future will be largely preventive, and that practitioners will be divided into two classes: those who specialize in public hygiene and will be in the government, county, or municipal service; and those who engage in the practice of personal hygiene, that is, general or consulting medical practice.

No sharp line can, however, be drawn between a pathologist and a physician, for the former is a physician engaged in acquiring facts in the laboratory or at the autopsy for the purpose of verifying or supplementing those obtained by the practitioner at the bedside. The work of each is important, and the conclusions should be arrived at in consultation. The first pathological laboratory was established by Virchow in Berlin in 1856, and this has been the model of the general plan of organization for nearly all pathological laboratories subsequently constructed in Germany and other countries. The idea of a laboratory as an integral part of a hospital is of recent origin in Great Britain, and may be traced to Hughes Bennett and Beale. According to Professor W. H. Welch, the credit of first establishing a public health laboratory belongs to Pettenkofer. State medicine thus first obtained its domicile in 1872 from the Bavarian Government. This admirably equipped laboratory was opened for students in 1878. Such laboratories are the glory to-day of German universities, which possess over two hundred of them, and by their aid Germany has secured, since the middle of the last century, the palm for scientific education. It is generally recognized—and nowhere more generally, it is said, than in the United States—that where laboratory facilities are the most ample and available, there are developed the largest number of trained workers who make most discoveries.

The relationship between public health and pathology is intimate, and one of the best examples, perhaps, is routine examination of sputum suspected of containing tubercle bacilli. It has long been accepted that the sputum of a patient with pulmonary tuberculosis may be a potent source of danger to others, containing, as it may, virulent tubercle bacilli. These may retain their vitality in the dry state for eight to ten weeks and then be infectious. Tuberculosis accounts for 60,000 deaths a year in Great Britain and Ireland.

Is it not, then, permissible to say, with Bezly Thorne, that the gratuitous examination of sputum, milk, and meat for Bacillus tuberculosis is as much a national concern as is vaccination?

There are many other diseases, information on which equally depends upon laboratory examinations very largely, and the conclusion is that the laboratory is an integral part of the general public health machinery. This is recognized by some of the largest cities and county councils in the United Kingdom which have had laboratories in operation for a number of years in connection with their sanitary departments. There still remain large areas unprovided for, and these must look to their county councils and to the central health authorities. Without such arrangements they are practically destitute of a valuable aid in the detection of foci of disease. The executive officer depends, in addition, partly upon information from the laboratory as to conditions that exist, as a guide to his action for the protection of the public. Professor F. F. Wesbrook considers that the laboratory official is trained nowadays so that he can acquire knowledge on the spot which may be of the greatest importance to the administrative officers, and his services should be available. The problems connected with tuberculosis that remain to be worked out in the laboratory alone require systematic and concerted research.

These facts may be accepted as strong evidence of the need for the organization of gratuitous bacteriological examinations on a national scale, as adjuncts to existing sanitary departments, so that no part of the country may be deprived of such advantages.

If this premise is accepted, the outcome is that the bacteriologist should be placed in the ranks of public health officers, and should be a member of the sanitary service.

Such a strengthening of the service may be regarded as part of a great problem of far-reaching interest and gravity, which is ripe for consideration and discussion. It is the central coördination of all preventive measures in a national health department presided over by an expert non-party minister of high rank and power.

Professor J. G. Adami has said that all Anglo-Saxon institutions advance by compromise. Which is the line of least resistance in a matter which affects the welfare of nations? Will this meeting determine the cleavage of public apathy? Hasty conclusions must on every account be avoided. Very eminent authorities consider that the time is not even yet ripe for such a development, but it is well known that there are many statesmen and distinguished medical men, both in this country and in other English-speaking lands, who have identified themselves with such an institution based on their existing ones. The main idea that actuates most people is that, given a leader in public health, great improvements in organization will follow.

Men who would follow a Roosevelt, a Napoleon, or a Booth, would be as profoundly influenced by a Pasteur or a Lister of public health.

There are obvious considerations on either side. There is the sturdy Anglo-Saxon respect for local institutions and local independence; there is the possibility of overcentralization, in which the central machinery may be out of proportion to the peripheral equipment and appliances. There is the proper desire for the growth of public opinion to be proportionate to the evolution of State guidance. Without any doubt, there is too great a gap already existing between the masses of our countrymen and those who are educated or even familiar with this aspect of medicine. How can this gap be bridged so that the really great stores of scientific knowledge that do exist can be rendered available?

The introduction of the fundamental principles underlying health and disease, into national educational systems, will undoubtedly pave the way for advance, so that public opinion will in time support whole-heartedly the medical practitioner and the health officer in his daily work. This is one but not the only path, and certainly it will be a long one before the complete organization of State medicine at all comparable to municipal sanitation in its sphere is attained. An appeal to the intellect is not always successful. Long experience has shown that mere agitation, and certainly panic, may gain more than the presentation of evidence based on reason. There are no true national boundaries in questions of health. Just as does religion, so should public health, unite all peoples in its cause. Great meetings such as this have a wide-spread influence, and it is by such assemblies that we may expect to devise a means by which all countries may move together in the consolidation of their health services and the development of ministries of public health.

(Suggestion: The appointment of a standing international council to meet at congresses on tuberculosis and hygiene and report progress.)

Evolución del Estado en su Relacion con la Tuberculosis.—(BUSHNELL.)

1. El estado, sus ministros y empleados representan pensamientos nacionales y vida.

2. El estado está ya en contacto con mucho de los problemas que estan a la base de la tuberculosis.

3. Entre ellos esta la aplicación de los metodos de laboratorio, las medidas de Salud Pública y la Medicina Preventiva.

4. Dr. Bezly Thorne incita que la examinación gratis, hechas por todas las Autoridades de Sanidad, del bacilo de la tuberculosis en el esputo, leche y carnes, es de un gran comento nacional como lo es la vaccina en la Gran Bretana é Irlanda.

5. La fundacion, segun los arreglos presentes, de un sistema nacional coordinado para los exámenes bacteriologicos y patológicos, de enfermedades trasmisibles al hombre y los animales, a las espensas del pueblo, es rasonable en la Gran Bretana.

6. El primer laboratorio de Patologia fué fundado por Virchow en Berlin en 1856 y el primer laboratorio de Salud Pública fué fundado por Pettenkofer en 1878. Hughes Bennett y Beale fueron identificados con los laboratorios de hospital en la Gran Bretana. (Prof. W. H. Welch, "The Evolution of Modern Scientific Laboratories.")

7. En la Gran Bretana é Irlanda tales administraciones sanitarias como condados y ciudades, tienen en operación laboratorios de salud pública, pero muchos distritos centrales carecen de ellos. La necesidad de la cooperacion de los laboratorios de los condados con los laboratorios de las universidades, colegios de Medicina y hospitales, en cuanto es posible, existe en la Gran Bretana a fin de llevar a cabo los trabajos rutinarios, investigaciones é instruccion.

8. El bacteriologista como un empleado de la salud publica y miembro del servicio sanitario, en igual importancia y provecho con los empleados administrativos.

9. La coordinación central de la salud pública en las medidas preventivas hacia el origen y prevencion de la tuberculosis en los departamentos de salud pública nacional, con jefes expertos (ministros) de alto rango y gran poder a la cabeza.

10. La posición actual de las naciones inglesas (los Estados Unidos, Canada, la Gran Bretana é Irlanda, y Nueva Zelanda), con relacion a los ministros de la Salud Publica.

Una sugestion.

Que como la Higienie no tiene limites, Un Consejo Internacional debiera organizarse cuyo objeto será vigilar y fomentar el engrandesimiento de los Departamentos Nacionales de Salud Publica.

L'État dans ses Rapports à la Tuberculose.—(Bushnell.)

1. L'État, ses ministres et ses officiers représentent la pensée et la vie nationales.

2. L'État se trouve déjà en rapport avec beaucoup des problèmes qui sont à la base de la tuberculose.

3. Entre autres nous citerons l'application des procédés de laboratoire aux mesures pour la santé publique et à la médecine préventive.

4. M. le docteur Bezly Thorne insiste que l'examination gratuite des crachats, des lait et des viandes pour le bacille de la tuberculose par toutes

les autorités sanitaires est tout autant affaire nationale qu'est la vaccination dans la Grande Bretagne et l'Irlande.

5. Le développement d'un système national coördiné d'examens bactériologiques et pathologiques, aux dépens de l'ètat, des maladies transmissibles d'hommes et d'animaux est tout-à-fait raisonnable dans la Grande Bretagne.

6. Le premier laboratoire pathologique fut celui de Virchow à Berlin en 1856 et le premier laboratoire pour la santé publique fut celui de Pettenkofer en 1878. Hughes Bennett et Beale s'identifièrent avec les laboratoires des hôpitaux en Grande Bretagne et en Irlande. (Prof. W. H. Welch, "L'évolution des laboratoires modernes scientifiques.")

7. En Grande Bretagne et en Irlande les conseils de comté et les conseils municipaux ont organisé des laboratoires à santé publique, mais il en manque en beaucoups d'autres arrondissements. Il existe un grand besoin en Grande Bretagne et en Irlande pour des laboratoires municipaux travaillant en coöperation avec ceux des universités, des écoles médicales et des hôpitaux pour enseigner et pour développer les recherches et les investigations.

8. Le bactériologiste comme officier de santé publique et membre du service sanitaire, doit être de position et d'émoluments pareils à ceux de l'officier administratif. (Division pathologique du service sanitaire).

9. La coördination centrale des mesures sanitaires et préventives en rapport à l'origine et à la dissémination de la tuberculose dans des départements de santé publique, sous des ministres habiles (non-politiques) d'un rang élevé.

10. La position actuelle des nations parlant anglais (i.e. les États-Unis, le Canada, la Grande Bretagne et l'Irlande et la Nouvelle Zélande) envers les ministres de santé publique.

Une suggestion que, puisque l'hygiène ne connaît pas de limites, un conseil international permanent soit établi pour surveiller le développement d'un département de santé nationale.

Ein Überblick der Massnahmen des Staates in seinen Beziehungen zur Tuberkulose.—(BUSHNELL.)

1. Der Staat, seine Minister und Beamten repräsentieren die Gedanken und das Leben der Nation.

2. Der Staat ist bereits in Berührung mit vielen Problemen, die sich mit der Wurzel der Tuberkulose beschäftigen.

3. Unter diesen, in der Anwendung der Laboratoriumsarbeit im Interesse der öffentlichen Gesundheit und Massnahmen vorbeugender Heilkunde.

4. Dr. B. Thorne dringt darauf, dass die zufriedenstellende Untersuchung von Sputum, Milch und Fleisch durch autorisierte Gesundheitsbeamte

ein ebenso grosses nationales Erfordernis ist, wie die Impfung in Grossbritannien und Irland.

5. Die Entwickelung der gegenwärtigen Verhältnisse eines zusammenarbeitenden Systems bakteriologischer und pathologischer Untersuchung als öffentliches Erfordernis übertragbarer Krankheiten von Menschen und Tieren ist in Grossbritannien in anerkennenswerter Weise durchgeführt.

6. Das erste pathologische Laboratorium war das Virchow's in Berlin im Jahre 1856 und das erste öffentliche Gesundheitslaboratorium war das Pettenkofer's im Jahre 1871. Hughes, Bennett und Beale waren mit Hospitallaboratorien in Grossbritannien und Irland identifizirt. (Prof. W. H. Welch, "Die Entwicklung moderner wissenschaftlicher Laboratorien.")

7. In Grossbritannien und Irland haben viele Grafschaften und Städte in ihren für die öffentliche Gesundheit dienenden Sanitäts-Einrichtungen öffentliche Gesundheitslaboratorien vorgesehen, doch ist in vielen Landdistrikten noch ein Mangel darin vorherrschend. Die Notwendigkeit für Landlaboratorien, die mit den medizinischen Schulen zusammenarbeiten, hat sich in Grossbritannien und Irland als notwendig erwiesen wo immer es möglich sei, da dadurch die nötigen Kenntnisse und die erforderliche Routine in gleicher Weise verbreitet werden.

8. Der Bakteriologe als öffentlicher Gesundheitsbeamter und Mitglied des Gesundheitsdienstes gleichwertiger Staaten arbeitet mit dem administrativen Beamten zusammen. (Pathologische Abteilung des Sanitätsdienstes.)

9. Die centralisierte Zusammenarbeit der gesundheitsamtlichen Massnahmen in Beziehung zum Ursprung und zur Verbreitung der Tuberkulose im nationalen Gesundheitsdepartement, welches keine Vorstände (oder Minister) von hohem Rang und Machtstellung an ihrer Spitze erwartet.

10. Die gegenwärtige Stellung der englischsprechenden Nationen (die Vereinigten Staaten, Canada, Grossbritannien und Irland, Neu-Seeland) in Beziehung zur öffentlichen Gesundheitspflege.

Ein Vorschlag: Da die Hygiene keine Grenzen kennt, sollte ein ständiges internationales Amt geschaffen werden, welches das Wachstum der nationalen Gesundheitsämter beobachten und fördern sollte.

FEDERAL HEALTH ORGANIZATION.

By Professor Irving Fisher,
New Haven.

The Committee of One Hundred on National Health, of the American Association for the Advancement of Science, was organized in the spring of 1907. Its aim is to secure a bureau or bureaus of health under the Federal government, as it is believed that in this way tuberculosis and other diseases can be most successfully reduced. The committee has received the cordial support of President Roosevelt, the late ex-President Cleveland, Mr. Taft, Mr. Bryan, the governors of various States, and senators and congressmen.

Last summer the health plank of the Committee of One Hundred was adopted in the platforms of the Republicans, Democrats, and of the Independence League. The Republican platform read:

"We commend the efforts designed to secure greater efficiency in national public health agencies and favor such legislation as will effect this purpose."

The Democratic platform read:

"We advocate the organization of all existing national public health agencies into a national bureau of public health, with such power over sanitary conditions connected with factories, mines, tenements, child labor, and other such subjects as are properly within the jurisdiction of the Federal government and do not interfere with the power of the States controlling public health agencies."

The movement has the indorsement of the American Medical Association and other medical organizations, the American Public Health Association and other hygienic organizations, the United Mine Workers of America and other labor organizations.

It is closely linked with the movement toward the preservation of our natural resources. In the peroration of President Roosevelt's famous speech before the conference on the Conservation of Natural Resources he said: "Finally, let us remember that the conservation of our natural resources, though the gravest problem of to-day, is yet but part of another and greater problem to which this nation is not yet awake, but to which it will awake

in time, and with which it must hereafter grapple if it is to live—the problem of national efficiency."

There already exists at Washington a Public Health and Marine Hospital Service, but its work is chiefly confined to quarantine, to the care of sick sailors, and to the examination of antitoxin at its hygienic laboratory. There is also the Bureau of Pure Foods, presided over by Dr. Wiley, and in the Census Office there is a Division on Vital Statistics. A proposition which has found favor with many in Congress is to utilize the Department of the Interior by transferring from it most of the bureaus not connected with health or education and to transfer to it the various scattered health agencies now in other departments. To the nucleus thus formed it is hoped to add a bureau of medical investigation and a children's bureau.

There is much difference of opinion as to the extent to which the Federal government may constitutionally exercise health powers, but the committee is taking pains to avoid any controversy on this point by confining its recommendations to research and publication, entering into the field of regulation only so far as it affects interstate relations or the District of Columbia. It is hoped that the national capital may become a model city in sanitation as well as in other respects, in accordance with President Roosevelt's well-known plans. By holding up high standards in public and personal hygiene, the national government will aid in the national efficiency, not only directly, but by giving greater prestige and in stimulating to redoubled activity the work now being done by State and municipal boards of health. Public opinion holds sway in matters of health as elsewhere. It is largely for the purpose of impressing public opinion that these international congresses on tuberculosis are held. It is believed that a Federal organization of health, by persistently upholding health ideals, and by the demonstration of methods of attaining and maintaining health, will keep the public interest from flagging.

First and foremost among the specific problems to be treated by this national organization is the problem of tuberculosis. At present circulars and pamphlets of information are issued by many State boards of health which might with great advantage be issued by one authoritative central bureau and utilized by all. The circulation of such pamphlets, if issued by the Federal government, would be far wider, the cost of distribution far less, and the authority and ability of those who write them would be much greater. Already the Bureau of Animal Industry in the Department of Agriculture has made important contributions to tuberculosis, not only by inspection of meats, but still more by the investigation of tuberculosis in dairy products, particularly butter. Several bills are now before Congress relative to tuberculosis, and one was passed at the last session making compulsory the notification of cases of tuberculosis in the District of Co-

lumbia. The expansion of such work through a powerful national organization of health would not only give a great impetus to the "crusade against tuberculosis," but would utilize this crusade to bring about an improvement in American health generally.

La Organización Federal de Salud.—(FISHER.)

El Comité de los Cien sobre la Salud Nacional, se esfuerza en promover el aumento, centralizacion y extension del Bureau de Salud. El movimiento hacia la conservacion del vigor nacional, esta conectado por diferentes modos con el movimiento hacia la conservacion de los recursos naturales. El Presidente Roosevelt en la oracion de su famoso discurse de la Casa Blanca dice: "Finalmente permitasenos recordar la preservacion de nuestros recursos naturales, aunque el problema mas grave del presente, aun todavia no es sino una parte de otro problema mas grande al cual la nacion aun no se ha despertado, mas que se despertara á su tiempo, y sobre el cual debe apoyarse si es que pretende existir—el problema de la eficiencia nacional."

No se pretende traspasar los limites del Departamento de Salud del Estado. El pensamiento se limita solamente mas bien á levanter el Departamento de Salud á un estado de mayor actividad. Un método para llevar á cabo esto consiste enhacer de la ciudad de Washington, sobre la cual el Gobierno Federal tiene dominio, una ciudad modelo en la Higiene.

ZUR BEKÄMPFUNG DER TUBERKULOSE IN DEN GEMEINDEN.

Von Dr. Benö Farkas,
in Komárom (Ungarn).

Die Tuberkulose lastet wie eine egyptische Plage auf der Menschheit, sie fügt der Volksgesundheit die schwersten Verluste zu, fordert hunderttausende Leben als Opfer. In Anbetracht ihrer verheerenden Wirkung kann ihre Bekämpfung nur mit grossem Aufwand von entsprechenden Institutionen, materiellen Opfern und Mühe von Erfolg begleitet sein.

Eines der bewährtesten Mittel im Kampfe gegen die Tuberkulose ist das weitverbreitete, auf die Unterstützung der Versicherungsanstalten und dem Kassenwesen beruhende Heilstättenwesen. Die Errichtung und Erhaltung von Heilstätten haben ohne Zweifel zu den erzielten therapeutischen Erfolgen wesentlich beigetragen; doch zeigte es sich bald, dass zur Bekämpfung der Tuberkulose, in Anbetracht der grossen materiellen Opfer für die Unterbringung der Tuberkulösen in Heilstätten, das Budget der Gemeinden nicht ausreicht.

Neben diesen und ähnlichen Anstalten empfehlen sich für Ungarn die Fürsorgestellen (dispensaires).

Für die Mehrzahl der Tuberkulösen, welche in keiner Heilanstalt Aufnahme finden, in ihren Wohnungen zur Infection beitragen und so ihre Umgebung gefährden, sind die Fürsorgestellen—Dispensaires für Lungenkranke nach dem Beispiele von Belgien und Frankreich—in ihrer segensreichen Wirkung von höchster Bedeutung.

Die Wichtigkeit der Errichtung der Dispensaires im Kampfe gegen die Tuberkulose wurde auch in Ungarn anerkannt und zur Errichtung und Förderung dieser Institution beigetragen. Der Anfang damit ist bereits gemacht und wie auf Anregung des durch seine grossen Verdienste im Kampfe gegen die Tuberkulose bekannten Professor v. Korányi vor zehn Jahren bereits das erste Sanatorium für Lungenkranke in der Nähe der Hauptstadt errichtet worden war, dem ein zweites und drittes folgte, ist die Errichtung von Dispensaires im Zuge. Die bereits in Wirksamkeit befindlichen Dispensaires nehmen die Kranken und deren Angehörigen in ihren Schutz, gewähren denselben nötigen Falls auch materielle Hilfe unter der Bedingung, dass dieselben den Massnahmen zu fügen sich verpflichten,

soweit diese ein Gebot der Hygiene bilden, zur Hintanhaltung der Infection in der Familie beitragen. In den Dispensaires sollen auch diejenigen, die sich krank fühlen, nötige Aufklärung und ärztlichen Rat finden. Seitens der Verwaltung sollte auch nötigen Falls bei der Ortsbehörde die Desinfection verseuchter Wohnungen angeregt und veranlasst werden. Gut geleitete Dispensaires können auf die Sympathie und Unterstützung der Bevölkerung, sowie der Wohlfahrts-Anstalten rechnen.

In der Reihe der zur Bekämpfung der Tuberkulose dienenden Einrichtungen ist die Anzeigepflicht der Tuberkulose-Erkrankungen ein wichtiges Glied. Die Frage, ob die Anzeigepflicht auf alle diesfällige Erkrankungen, oder nur auf die für die Umgebung des Kranken gefahrdrohenden Fälle auszudehnen sei, wurde vielfach ventiliert und die allgemeine Anzeigepflicht für unbedingt notwendig erklärt. Es wurde auf die klinische Diagnose hingewiesen, welche durch die v. Pirquet'sche Impfpapel sowie der Conjunctival-Einträuflung erzeugte Reaction eine wesentliche Bereicherung erfahren hat, damit der Einblick über die Ausbreitung der Krankheit erleichtert sei. Es wurde ferner geltend gemacht, dass die allgemeine Anzeigepflicht ebenso gerechtfertigt und geboten sei, wie bei den acuten Infectionskrankheiten (v. Schrötter).

Was die Bereicherung der klinischen Diagnose betrifft, können die diesbezüglichen Arbeiten noch nicht als abgeschlossen gelten.* Die Diagnose stösst in ihrer latenten Form, in ihrer ganzen Eigenart auf Schwierigkeiten. Die Tuberkulose ist auch mit den acuten Infectionskrankheiten, welche den Kranken überfallen und in verhältnismässig kurzer Zeit ihren Verlauf nehmen, nicht auf eine Stufe zu stellen. Sie setzt oft im Beginne ohne besondere Beschwerden schleichend ein, was bei den acuten Infectionskrankheiten nicht zutrifft.

In Staaten, in welchen die Arbeiterversicherung, das ausgebreitete Kassenwesen die Grundlage für die Tuberkulose-Bekämpfung bildet, die Unterbringung und Versorgung der Kranken gesichert ist, mag die allgemeine Anzeigepflicht als Stütze des vorbeugenden Verfahrens am Platze sein, während sie dort, wo Armut eine der ergiebigsten Quellen der Krankheit ist, der Staat für die Unterbringung der Kranken nicht in genügender Weise zu sorgen vermag, die allgemeine Anzeigepflicht nicht den Erwartungen entsprechen kann.

In Anbetracht der Verhältnisse ist in Ungarn die partielle, beschränkte Anzeigepflicht der allgemeinen vorzuziehen, und wäre auszudehnen auf:

a. Tuberkulöse Kranke, welche in den Heilanstalten aufgenommen, entlassen oder gestorben sind.

* Cohn: Über Ophthalmoreaktion auf Tuberkulin, Berlin. klinische Wochenschrift, 1907, No. 47. Ernst Levy: Vortrag im Verein für innere Medicin, Berlin, 1907, xii, 16. Dach: Zur Kenntniss der kutanen Impfpapel nach v. Pirquet, Med. Klinik, Wien, 1908, No. 2.

b. Bei wohnen von Tuberkulösen in einem Hause, welches als Collectivwohnung dient, die Mitbewohner mit Infection gefährdet. Bei Wechsel der Wohnung und nach Todesfall.

c. Auf, an Tuberkulose leidende Dienstboten, Ammen, Köche in Kaffee- und Gasthäusern, Restaurants, Pensionen, Milchwirtschaften Bediensteten.

d. Schulen besuchende tuberkulöse Schüler.

e. An, aus dem Militärstande wegen Tuberkulose Entlassenen, aus dem Heere Ausgeschiedenen.

Über diese sollten von der Militärbehörde in jedem Falle die Anzeige an die Civilbehörde gemacht werden, damit letztere dahinwirken, dass die Kranken in Heilanstalten untergebracht, die Verbreitung der Krankheit innerhalb der Civilbevölkerung verhindert werde.

The Prevention of Tuberculosis in Communities.—(Farkas.)

1. In view of the conditions existing in Hungary, encouragement should be given to the building of sanatoriums and the establishment of more *supporting dispensaries* for consumptives who lack the means to care for themselves.

2. *Disinfection.*—Dwelling houses should be disinfected by the local authorities at the request of the supporting dispensaries, and disinfection should take place in every tenement that has been occupied by a consumptive or in which a consumptive has died.

3. *Compulsory Notification.*—Compulsory notification is called for wherever consumptives are cared for, either in their homes or in institutions. Partial notification should be extended to the following cases:

(*a*) Tuberculous patients who have been admitted to sanatoriums or have been discharged, or have died.

(*b*) When consumptives live in a house which is shared by others, who are, therefore, exposed to the infection.

(*c*) Servants, nurses, cooks in restaurants and hotels, boarding houses, and dairy employees.

(*d*) Tuberculous school-children.

(*e*) Those who have been dismissed from the army on account of tuberculosis.

La Prevención de la Tuberculosis en las Comunidades.—(Farkas.)

1. En vista de las condiciones existentes en Hungaria, debiera fomentarse la construcción de mas sanatorios, y más aun la instalación de dispensarios gratis para los tísicos á los cuales les faltan los recursos necesarios para curarse éllos mismos.

2. Las habitaciones deberán ser desinfectadas por medio de las autoridades locales á petición de los dispensarios gratis y la desinfección deberá hacerse en cada casa que ha sido ocupada por un tísico ó en donde un tísico ha sucumbido a la infección.

3. Notificación obligatoria: La notificacion deberá hacerse de todos los casos de tuberculosis, bien sea en los hogares ó en las instituciones. La notificación deberá comprender particularmente los casos siguientes:

(*a*) Pacientes tuberculosos los cuales han sido admitidos en los sanatorios, á los que se les ha dado de baja ó los que han fallecido.

(*b*) De los tísicos que viven como inquilinos y que por lo tanto expone á los otros a la infección.

(*c*) De los sirvientes, nodrizas y enfermeras, cocineras en los restuarantes y hoteles ó en casas de huespedes y los empleados en las lecherias, afectados de la enfermedad.

(*d*) De los niños tuberculosos en las escuelas.

(*e*) De aquellos que se les ha dado de baja en el ejercito a consecuencia de la afección.

Prévention de la Tuberculose dans les Communautés.—(FARKAS.)

1. Étant donné les conditions existant dans la Hongrie, il faudrait y encourager l'établissement de sanatoriums et y augmenter le nombre de 'dispensaires antituberculeux' (supporting dispensaries) pour les tuberculeux qui, n'ayant pas les moyens de se soigner, contribuent à la propagation de la maladie.

2. Désinfection: Les habitations devraient être désinfectées par les autorités locales à la requête des dispensaires, et l'on devrait désinfecter tout logement qui a été occupé par un tuberculeux ou dans lequel un tuberculeux est mort.

3. Déclaration obligatoire. On doit enregistrer tous les tuberculeux soignés à domicile ou dans une institution. On fera une déclaration partielle dans les cas suivants:

(*a*) Malades tuberculeux admis dans les sanatoriums, renvoyés des sanatoriums, ou décédés;

(*b*) Tuberculeux qui partagent le logement d'autres personnes, les exposant ainsi à la contagion;

(*c*) Domestiques, garde-malades, cuisiniers de restaurants, hôtels et pensions, et les employés de laiteries;

(*d*) Écoliers tuberculeux;

(*e*) Soldats renvoyés de l'armée pour cause de tuberculose.

A GREAT NATIONAL PROBLEM.

By Dr. C. A. L. Reed,
Cincinnati.

The text of my address to-day is to be found in a few important facts. Tuberculosis alone causes the death of 160,000 persons and the constant illness of a half million more each year in the United States. The disease is preventable.

The United States to-day has no national public health agency vested with power competent to cope with the evil. Both of our great political parties have this year committed themselves to the creation of such a national public health agency; and, yielding to the agitation inaugurated by Dr. C. G. Comegys, of Cincinnati, at the meeting of the American Medical Association in this city in 1891, and since continued by that organization in connection with other organizations that have later joined in the movement.

The President has signified his intention to bring to the attention of Congress, at its session in December, specific proposals looking toward the correction of this unfortunate defect in our own governmental organization.

The object of my remarks is not to impress this great body of scientists from every quarter of the world, for that is unnecessary; but through this body to impress the people of this country with the extreme importance of supporting these proposals, to the end that lives shall be saved; and that this shall be better done, that science shall be given due honor in the practical government of man.

The Greatest Human Asset.—In approaching this question let us remember that the basis, the very fundamental basis, of prosperity is the productive energy of the people. We have been hearing much of our natural resources. The soil, the mines, the waterways, and the forests have each been enumerated as an asset. Yet each of them would be as worthless as the sandy stretches of the Sahara without the developing power of the greatest of all our natural resources—human labor and human intelligence. It is, therefore, the human factor, first, last, and all the time, that counts. Yet I am sorry to say that it is a factor that is taken all too little into account by our publicists when they assume to talk learnedly on the great problems of national economics. This, I regret to say, arises too much from the fact that,

with them as with the people generally, human life has become a mere emotion, and not much of that, without even being recognized as a unit of value translatable into terms of dollars and cents.

Yet I am confident that the chief national legislation of the immediate future, as already indicated, will be based upon the fact that a man's energy is his best asset, and that its full value depends upon his health and his length of years.

Scattered National Health Agencies.—This movement is fostered not only by human and economic considerations, both of which I shall discuss at greater length later on, but by the fact, as already intimated, that the existing public health agencies established from time to time by our national government are insufficient and incoördinate, and, to that extent and in consequence of that fact, are both unnecessarily expensive and disastrously inefficient in coping with this devastating evil.

In the first place, they are scattered throughout the various departments of the government. In consequence of this arrangement, or lack of arrangement, the Secretary of the Treasury is now the chief health officer of the United States. The Secretary of Commerce and Labor is in charge of the very fundamental basis of a health department, namely, the bureau of vital statistics. The Secretary of Agriculture has the enforcement of the most important public health law that has recently been enacted, namely, that relating to pure food and drugs. The Secretary of the Interior is the sanitary administrator of the Territories, of the Indian tribes, and of the great national eleemosynary institutions. The Secretary of War has charge of the sanitation of our insular possessions, including the Isthmian canal zone. The Secretary of the Navy and the Secretary of War, under the advice and direction of their respective surgeons-general, are of course in control, as they ought to be, of the health of, respectively, the navy and the army. Many other instances might be given to illustrate the fact that our national public health agencies, considered in the aggregate, are in no possible sense connected with a coördinating center or under the direction of an intelligent and purposeful centralized administration.

Results to the People.—This would be a matter of comparatively little concern if the results were not literally disastrous to the people. It is true that there are many things that are being done, and being well done, to protect the people against unnecessary disease and death. Our frontier quarantine is reasonably sufficient; our protection against plague and pestilence of foreign origin seems satisfactory; our immigration inspection is good; our pure food and drug administration is eminently satisfactory; while the sanitary triumph in the Isthmian canal zone marks an epoch in the protection of human welfare.

There are, however, many things that are not done under existing con-

ditions—things that ought to be done if we had a properly organized national department of public health.

Disastrous Warfare.—This is strikingly true of the great problem involved in the long, hard warfare here inaugurated in this country against an enemy, already camped in our midst, more numerous than all the men in all the armies and all the navies of all the world in all the ages—an enemy that is triumphantly taking from the American people each year victims in death more than equivalent to one whole army and two whole navies of the United States. But where one dies of tuberculosis many are ill—how many it is quite impossible to tell in the absence of information that could be gathered only through the instrumentality of a great national health agency, such as is now under serious advisement in governmental circles. I have been led to believe that in tuberculosis, mortality is to morbidity as one to five. If this is even approximately true, it follows that each year, while 160,000 people are dying of this disease, 800,000 are ill from the same cause. Invalidism induced by this cause is generally prolonged, varying from a few months to several years. One year is under the mean average duration of the disease. What does this mean? Statistics relating to a general condition spread all over three millions of square miles are not so impressive as if the same condition were concentrated and restricted to a more limited area.

Some Striking Illustrations.—Let us say, then, that every man, woman, and child in the State of Connecticut is stricken with this disease and remains an invalid for the space of an entire year, and that the deaths among them represented the entire population of New Haven with half of the population of Hartford. Or let us imagine that Indianapolis or St. Paul or Kansas City had suddenly dropped off the map. The disparity in population between these cities and the deaths that occur annually from tuberculosis is not sufficient to destroy the force of the comparison for the purpose of an object-lesson.

What is it Worth?—This sounds like strong language; it doubtless is strong language; but I challenge refutation of its accuracy. But strong as are the statements, startling as must be the illustrations, they will, I fear, fail to arouse action unless their meaning is expressed in dollars—it is not worth while to bother about the cents. In this computation our unit must be a human life. What is it worth? I am not asking the widow or the orphan. I am asking our publicists; I am asking the hundreds—yes, literally hundreds—of lawyers in Congress. But I ask them in vain. Their published utterances relate to money—always money—tariff money, railroad money, labor money, Standard-Oil money, to all kinds of money except the money that is represented in the very life of the money-earner himself. On this they are silent. So we must begin for ourselves.

The Equivalent in Coin.—A man's life is his capital; what he earns is

the interest on his capital. Most States make 6 per cent. a legal rate of interest. But make it 5, both for conservatism and easy counting. Then compute a man's wage, say, at a dollar and a quarter a day, for three hundred days in the year, as 5 per cent. of his capital. Then estimate on that basis the value of 160,000 lives and the value of the time of 800,000 persons for one year, and you begin to grasp the colossal money phase of this question viewed in its strictly economic aspects. Of course, many who die from tuberculosis are dependents, many are non-producers, and many who are producers do not earn a dollar and a quarter a day, and many do not work three hundred and sixty days a year. But it is likewise true that many, very many, of these victims have an earning capacity running high up into the thousands of dollars.

So it is probable that our units of computation are not far out of the way. But, still to be conservative, divide the aggregate loss then arrived at by two, and again by two, and you will still have enough left, which, if covered into the national treasury, would defray the running expenses of the army and the navy, build the Panama canal, and pay the national debt long before our outstanding obligations mature.

State and Federal Control.—In considering the question of a national department of public health in its relation to the control of tuberculosis one of the first conditions to be considered is the limitation, under the form of government, of the State and national governments, respectively, in the premises. It may be said that practically everything that is being done in the tuberculosis problem to-day is being done by the States by virtue of the police power reserved to them under the Constitution. This fact, more than any other one, aside from popular apathy on the whole subject, is probably responsible for the comparative dearth of results so far achieved. In the first place, the status accorded to sanitary authority in the States, as it is in the national government, is very generally, but not always, such as to give it neither educational value, moral force, nor adequate executive authority.

Uniform Laws—A Council of States.—The laws in the different States are generally inadequate, and, whether adequate or not, their complete lack of uniformity renders it impossible for the States to coöperate in the solution of a problem which, like this problem, is coextensive with all the States. Like laws for like conditions is the first requisite for the control of any national necessity by State legislation. And like laws by the States will probably not be enacted to any great extent until, under the initiative of the national government, the States shall send delegates to a representative body, a sort of council of States, which shall meet, as a legislature or Congress meets, in a session or sessions long enough to accomplish satisfactory results, and whose object shall be to formulate standard bills on various

subjects and send them back to the legislatures for enactment. In this way, and in this way alone, can the States move with anything like satisfactory rapidity in meeting the crying demand, for like laws for like conditions not only as relates to great sanitary problems, including the problem of tuberculosis, but as relative to many other problems that concern the economic and social welfare of all the people. This step should be taken without delay, for, even at the best, considerable time must elapse before results from this means can be realized.

Rights of the National Government.—In the absence of some such effort on the part of the States, or even with such effort, but recognizing that there is enough for both State and Federal governments to do, it seems to me that Congress, acting under the general welfare clause of the Constitution, is competent to take charge of the situation. This principle was recognized by the conference of governors of the Southern States held only a few years ago, and it had been adopted and acted upon by the general government as applied not only to maritime but to inland and to interstate quarantine of yellow fever. Acting on this principle and along lines parallel with those followed in the instances of yellow fever and bubonic plague, it becomes entirely competent for the national government, when necessary, to take charge of domiciliary sanitation, the absence of which is the one factor most responsible for the propagation of tuberculosis. The national government has the only power competent to enforce sanitation of railway coaches and steamboats engaged in interstate business and of steamships touching our ports. The Pullman coaches, next to tenement-houses, it would seem, from a study of all conditions, are probably the most potent factors in the dissemination of tuberculosis. The Federal government should have as much control over the migration of tuberculosis patients as over any other dissemination of a plague. The question of establishing great sanatoriums on government land reserves, and of colonizing them with tuberculosis patients from the crowded centers, is another detail, but one that can be solved best probably by the coöperation of the State and national authorities. And this reminds me to say that in all this great campaign the dominant idea must be that of coöperation, rather than antagonism between State and Federal authority, and that in every instance in which conflicting laws prevent such a consummation a way must be found by coöperative action to change the laws. This is not the land of Medes, neither of the Persians.

A Matter of Practical Legislation.—Then by all means let us have a dual plan of campaign against tuberculosis. Let us attempt, through a council of States, to secure uniform State laws touching this and other important questions. And let us have a strong Federal public health agency with which to do the national side of the work. About this latter proposition it seems to me there ought to be no particular difficulty. The existing national

public health agencies could be assembled by transfer from the various departments in which they are now located into some one of the existing departments, and there organized, under authority of additional law, on the basis of highest efficiency.

The Paramount Question of Status.—I have said that these agencies should be assembled in some existing department rather than organized into a separate and distinct department with representation in the cabinet. I have said this because there appear to be sound executive reasons why the cabinet should not be enlarged. At the same time I must insist that the fundamental importance of this health movement, as shown by this Congress, and by hundreds of other congresses and associations, demands that for its fullest efficiency it should be accorded the educational and moral force to be derived only by its titular recognition in the departmental scheme of our government. The two propositions are fortunately readily reconciled. This can be done by changing the name of the department in which the health agencies are assembled, thus avoiding the multiplication of cabinet officers. Thus it shall be found wise to make the bureau of vital statistics the receptacle for the aggregated service; the name of the department could be changed to that of "Commerce, Labor, and Public Health." Or if it shall be deemed expedient to select the Department of the Interior, the name of the department should be changed to that of "Education and Public Health," which, unlike the present, would mean something and stand for something distinctive among our national interests. But I insist, in the name of the medical profession, in the name of science, in the name of humanity, that a great governmental agency to conserve, as this one proposes to conserve, more lives, more homes, more property, and more money, than any other single agency in the whole plan of government, shall be accorded a status befitting its dignity and its worth to all the people.

DISCUSSION.

Dr. Liceaga, Mexican delegate, said that the paper which had just been read demonstrated the necessity which is being felt all over the world. He said that no State was able to be successful in the enactment of uniform sanitary laws and regulations if there was no central health department.

When the plague broke out in Mazatlan in 1902–03, the governments of the United States, Cuba, and those of the West Indies thought that Mexico would not be able to take the necessary steps for the control of the disease. At the time Mexico established one chief, one central office, and one treasury, which three factors combined to give most satisfactory results, to such an extent that after six months had elapsed the plague had been entirely extinguished, and no more cases of plague have appeared in the republic.

In 1903 several cases of yellow fever appeared in the port of Vera Cruz,

spread in the Gulf States, and even invaded some other States. Then the seaboard States called for intervention by the Federal government. In three months the epidemic was stamped out, and the isolation and destruction of the foci of infection were continued over a period of two years. In 1907 there were seven cases of yellow fever; this year (1908), three new foci were discovered in Laguna del Carmen, Vera Cruz, and Merida. Such results would have never been obtained without a central department of health.

Dr. Eugene Bullock (St. Joseph, Mo.): As one of the most eminent medical writers has said: "There are duties which are difficult of fulfilment pertaining to every position in life; and there are duties attached to public professional life from which no man can assume to himself the right to shrink with whatever diffidence and feeling of incapacity they may be undertaken." It is with a feeling that the paper has been too much abridged to fully accomplish its original purpose, and also with a feeling of the duty of a public servant to a deserving and misused people, that this task is undertaken.

When the masses of people read in the daily papers of the efforts being made by the antituberculosis societies to protect the public from the ravages of the white plague, they are liable to think their interests are guarded better than they really are. They read of what the societies are trying to do, and fail to think of what ought to be accomplished. A vast amount of good has been done by the efforts put forth in the last few years to curb the onward march of tuberculosis.

However diligent the medical profession may be in its researches, however carefully it may educate the people to care for their health, there will still be lacking a certain discipline without which all efforts fail.

The secretary's report to the Missouri State Association for the Control and Prevention of Tuberculosis, May 20, 1908, among other things says: "We have been working to secure a traveling tuberculosis exhibit, to be shown in a railway car all over the State. This will enable us to reach thousands of people at very small expense, with information about the disease and its prevention. An effort was made to secure funds from the State board of health for this purpose. While the board was willing, the State Auditor felt compelled to refuse to honor their warrant." Here we see a lack of funds hampering the work of the society, and thus it will ever be till the necessary funds are provided from some other source.

The only way we will ever accomplish what should be accomplished, and accomplish it as soon as it should be, is to establish a department of health. Then we would have strict discipline—the only thing that ever accomplished anything where so many people are interested. After the government had once established the bureau we would have no lack of funds, literature, or means of distribution.

Our legislative departments of government enact laws and appropriate vast sums of money to advance our commercial interests. They build war-ships to protect our commerce and defend our honor at home and abroad. They appropriate millions to improve rivers and harbors to carry water to desert wastes and establish forest reserves—all for what? The people. And yet they let the people, every man, woman, or child of which is one eighty-millionth part of this government, go without the protection of a department of health.

Has the government done anything to safeguard the health of our people? Yes. By the Department of Agriculture. Greater strides have been made against the "white plague" by the establishment of government meat inspection and pure food law since 1889, when the department was first established, than have been accomplished by the medical profession in general since the time "Old Glory" was first borne upon the breeze.

Well do I remember when the Department of Agriculture was added to the President's cabinet. How much good-natured fun was poked at the new department. How the farmers laughed at the so-called government system of book farming. Who now dares question the wisdom of those who established it?

How many of us feel that when the government stamp of inspection appears upon our meat it is safe to eat? We know that the government official has inspected every brute that has been slaughtered for food, and if tuberculosis was found, the animal was condemned as unfit for food. Then why are we not safe? Eight years' experience as surgeon for three of the largest meat-packing firms of the world brought to my every-day observance that there are thousands of people who have consumption handling the cured and uncured foods we eat. These people are working in all kinds of factories, confectioneries, bakeries, and stores. I have seen people who I knew had tuberculosis, coughing their lives away and expectorating promiscuously their deadly spittle, handling fresh and cured meats.

The wonder is that the medical profession has tolerated it so long. Our local societies, our State societies, and our national society should demand of Congress and the President a department of health.

"But," says the Humane Society, "the man who has consumption must work, for he must live." In answer to this I say that, if our government is able to protect us from a foreign foe, it is able to care for those who, after being found a menace to health, are denied the privilege of working where they will endanger others.

I do not wish to tire you with dry statistics or tedious individual cases, but will recite one instance as a warning example that came under my observation. Five years ago I attended a man who had tuberculosis in both lungs. For several months this man expectorated bloody sputum,

and I finally sent him to Arizona. After a few months' time he was greatly improved and came home, but has continued to cough and expectorate very profusely ever since. He has been working for the past four years packing dressed poultry in boxes for shipment. He is now confined to his bed, in the last stages of consumption. How many people do you suppose have been infected or may have been infected by this one case? The only remedy is a department of health. I do not think there is a sane reason why we should not have one. I think it is the duty of every physician to help get one. And I think that if the proper effort is made we will get one.

After a department of health is established, we will wonder why we did without it so long.

If two hundred thousand of our people were menaced by the guns of some foreign enemy, whose bullets are not half so deadly as the germs of tuberculosis, what would our government do? Call out the entire United States army and bring home our visiting fleet of war-ships.

Our government has persistently ignored the question and the medical profession has slept the sleep of neglect. Societies may form and resolve, meet and adjourn, till the volume of human history shall be sealed and delivered to the Omnipotent Judge, and tuberculosis will still claim its millions unless the government sees fit to act. People will continue to be infected by those who have tuberculosis handling food products as long as the people and the government will tolerate it.

How long will we discuss imaginary means of prevention and ignore real ones? How long will the people endure the present abuses?

I appeal to the American members of this Congress to use their influence to secure a department of health, with government inspection, by medical officers, of those handling food products.

VORSCHLAG ZUR AUSROTTUNG DER TUBERKULOSE.

Von Dr. Emerich Toth,
Ungarn.

1. Die Tuberkulose verbreitet sich durch Kontagion und wird entweder durch den Bazillen enthaltenden Auswurf des kranken Menschen verbreitet der gelangt infolge des Genusses von Fleisch, Milch, Sahne, Käse und Butter des an Perlsucht leidenden Rindviehs in den Organismus.

2. Die Heilung der Tuberkulose durch Medikamente ist bis heute ohne Erfolg geblieben. Der Erfolg oder die Erfolglosigkeit der Spengel'schen und anderer Heilmethoden bildet heute noch eine offene Frage der Wissenschaft und Wortstreite über diese haben keine Übereinkunft zustande gebracht.

3. Die Tuberkulose unterscheidet sich von den anderen kontagiösen und epidemisch auftretenden Krankheiten dadurch, dass sie auf der ganzen Welt überall stetig vorhanden ist und überall mehr oder weniger Opfer heischt, während die anderen kontagiösen Krankheiten nur zeitweise und in kleineren oder grösseren Gebieten vorherrschend zu sein pflegen.

4. Eine Heilung, Vorbeugung oder Ausrottung der kontagiösen Krankheiten (ausgenommen Diphtherie, Blattern, Luës, Wechselfieber) durch blosses Heilverfahren übersteigt unser Können. Es müsste daher angestrebt werden, gegen die Tuberkulose gerade so vorzugehen, wie bei der Cholera, Pest, Typhus, u. s. w., bei welchen die Art und Weise des Verfahrens schon festgesetzt ist. Der an Tuberkulose leidende Kranke müsste abgesondert werden; der von ihm berührte kontagiöse Stoff sollte desinfiziert, d. h. zu einer Verseuchung unfähig gemacht werden; schliesslich müsste man bestrebt sein, die Wohnung, Möbel, Kleidungsstücke und andere Sachen des Kranken, welche dieser zu gebrauchen pflegt, mit grösster Strenge zu desinfizieren.

5. Das an Perlsucht leidende Rindvieh müsste vernichtet werden, geradeso wie man vor einigen Jahren das an kontagiöse Lungenentzündung leidende Rindvieh vernichtet hatte.

6. Alles mögliche sollte geschehen, um die die Tuberkulose befördernden Umstände und Verhältnisse zu bessern, und um dieses zu erreichen, müsste ein besonderes Augenmerk auf die Wohnung, Bekleidung, Ernährung, Beschäftigungshygiene, die öffentliche Reinlichkeit, wie auf die weltbekannte Verheerung des Alkoholismus gerichtet werden.

7. Die Hygiene müsste, als obligater Prüfungslehrgegenstand in Volks-, Mittel- und Hochschulen, Präparandien, Seminarien, höheren Töchter-, Handels- und Gewerbeschulen, mit einem Worte überall unterrichtet werden, wie das die ausserordentliche Wichtigkeit dieses Lehrgegenstandes erfordert.

8. Die Tuberkulose sollte als Krankheit, ihre Ursache, Natur, Kontagion, Verlauf, die für diese Krankheit empfänglich machenden Umstände, die Heilbarkeit der Krankheit, die Art und Weise der Vorbeugung in volkstümlichen Vorträgen, womöglich im weiten Kreise, bekannt gemacht, die Meschheit über dieselbe aufgeklärt werden.

9. Die Tuberkulose als eine kontagiöse Krankheit müsste beständig für eine epidemische Krankheit betrachtet werden. Darum sollte man jeden Tuberkulosefall der Behörde anmelden; die Kranken müssten in Evidenz gehalten werden und jene Kranken, welche an offener Tuberkulose leiden, wenn zu ihrer Pflege keine geeignete Lokalität oder entsprechend aufgeklärtes Krankenwärterpersonal nicht vorhanden wäre, in das Epidemiekrankenhaus interniert werden.

10. Die Behörden, der Staat sollte für tuberkulöse Kranke überall Ordinationslokalitäten aufstellen lassen; die unbemittelten Kranken müssten unentgeltlich behandelt und mit Arzneimitteln versehen werden. Dieserart könnte man dann erreichen, dass die an Tuberkulose leidenden unter entsprechender ärztlicher Behandlung und Kontrolle stehen würden. Die noch ambulanten, jedoch an offener Tuberkulose leidenden Kranken sollten verpflichtet werden, die Dittweiler'schen Spuckgläser zu gebrauchen.

11. Die Behandlung in Sanatorien weist bei der Heilung beginnender Tuberkulose glänzende Erfolge auf, darum sollten derartige Institute in je grösserer Anzahl errichtet werden.

12. Nachdem die Tuberkulose beständig eine epidemische Krankheit der gesamten Menschheit ist, müssten die gegen diese notwendigen Schutzmassregeln in jedem Kulturstaate ins Leben gerufen und solange in Kraft bleiben, und eingehalten werden, bis man zur Ausrottung der Tuberkulose über verlässlichere und erfolgreichere Mittel und Wege verfügt.

Suggestions for the Limitation of Tuberculosis.—(Toth.)

1. Segregation of the infectious patient and careful destruction of infected material. 2. Stringent measures for the eradication of animal tuberculosis. 3. Measures directed to dwelling houses, food supply, occupation, hygiene, cleanliness, and alcoholism. 4 Instruction in hygiene, of teachers in primary and secondary schools and in colleges, preparatory schools, seminaries, girls' high schools, business colleges, and the manual training school. 5. The people should be instructed by means of popular lectures. 6. Com-

pulsory notification of all cases of tuberculosis. 7. Free dispensaries for the indigent consumptives. 8. Walking cases should be compelled to use pocket spit-cups. 9. The erection of more sanatoriums.

Sugestiones para limitar la Tuberculosis.—(TOTH.)

1. Segregación de los pacientes infecciosos y una cuidadosa destrucción del material infectado. 2. Medidas extrictas para la eliminación de la tuberculosis en el ganado. 3. Medidas directas contra los factores predisponentes; las habitaciones, los alimentos, las ocupaciones, la higiene pública y el alcoholismo. 4. Instrucción en Higiene, la cual deberá ser incluida entre las materias del examen de maestros de escuelas primarias y secundarias y colegios, escuelas preparatorias, seminarios, colegio de mujeres, colegio de negocios, y en las escuelas politecnicas. 5. El pueblo deberá ser instruido, por medio de conferencias populares. 6. El denuncio obligatorio de todos los casos de tuberculosis. 7. Dispensarios gratis para los tisicos indigentes. 8. Casos ambulantes de tuberculosis deberán ser obligados a usar escupideras. 9. La construcción de mas sanatorios.

Recommandations pour limiter la tuberculose.—(TOTH.)

1. La ségrégation des malades infectieux; et la destruction soigneuse des matières contagieuses. 2. L'adoption de moyens rigoureux pour déraciner la tuberculose peritonéale bovine. 3. Les moyens dirigés vers l'enlèvement des agents provocateurs; soins des habitations, des aliments, des métiers, de la sanitation publique et de l'alcoolisme. 4. Enseignement de l'hygiène. Ce sujet doit être compris parmi ceux de l'examen des instituteurs dans les écoles primaires et secondaires, dans les lycées, dans les gymnases, les séminaires, les séminaires de jeunes filles, des écoles d'affaires, et dans les polytecniques. 5. Conférences populaires sur la nature de la tuberculose. 6. Déclaration obligatoire de tous les cas de tuberculose, qu'on doit ensuite surveiller. 7. Locaux d'assistance gratuite pour les poitrinaires indigents. 8. Les cas de tuberculose ambulatoires doivent être obligés de se servir de crachoirs portables. 9. Construction de sanatoriums.

COÖPERATION BETWEEN THE STATE AND PRIVATE CORPORATIONS IN THE CRUSADE AGAINST TUBERCULOSIS AS EXEMPLIFIED AT THE WHITE HAVEN SANATORIUM.

By Dr. William B. Stanton,
Philadelphia.

The White Haven Sanatorium was opened in 1901 by "The Free Hospital for Poor Consumptives and White Haven Sanatorium Association," an association organized in 1897. This association has for its program, first, the establishment of a sanatorium for early cases; second, the establishment of a sanatorium for advanced curable cases; third, the establishment of a hospital for dying cases; fourth, the establishment of a convalescent farm for cases which have had the disease arrested. It began its work with caring for dying cases in existing hospitals. Between the date of its organization, February 21, 1895, and 1903, when the maintenance of dying cases was temporarily suspended, the society maintained 1062 patients at from $5 to $7 a week in the following institutions: St. Agnes Hospital, St. Mary's Hospital, the University Hospital, the German Hospital, and the Rush Hospital of Philadelphia, Bideawhile Sanatorium and Sunnyrest Sanatorium in Pennsylvania, and Gabrielle Sanatorium in the Adirondacks. From the opening of White Haven Sanatorium in August, 1901, to March 1, 1908, the society has maintained 2749 patients at White Haven Sanatorium. In March, 1906, the Society, to facilitate its work, opened Department No. 2, for advanced curable cases. In April, 1908, it opened a department for children. The White Haven Sanatorium is two-thirds completed. It has two hundred and eleven beds.

Financial Support.—This comes from private charity, appropriations of the State of Pennsylvania, and board of pay patients. During the first six years after organization the members of the society collected $33,536.45 from private individuals. In 1901, when the White Haven Sanatorium was opened, the State made its first appropriation of $50,000, of which $40,000 was for equipment at White Haven and $10,000 for the maintenance of dying cases. This was followed by appropriations in 1903 of $115,000 ($65,000

for buildings and equipment and $50,000 for maintenance for two years); in 1905 of $70,000 ($60,000 for maintenance for two years and $10,000 for equipment and repairs); and in 1907, $70,000 for maintenance for two years. The society collected, between 1901 and 1907 inclusive, $135,460.85. As the average individual contribution was small, the aggregate represented a large number of contributors, and in consequence a large number of people interested. In the six years preceding the opening of White Haven a few cases had been found where the relatives or friends wished to contribute something to the support of the patient. The money received in this way before 1901 amounted to $379.81. In 1901, $339.32 was paid for board of patients, and in 1902, $1,034.96. In 1903 and 1904 all the beds at White Haven were made free. This resulted in a heavy debt, and in April, 1905, a portion of the beds was placed upon a partial pay basis and 100 beds maintained for free patients. The amount paid during this year (1905) by patients was $16,223.83. In 1906, $21,474.43 was paid by patients, and 1907, $32,676.60. The sources from which the money was obtained are shown in the accompanying tables.

Educational Value of Combined State Aid and Private Charity.—To appreciate this fully the method by which charities are aided by the commonwealth in Pennsylvania must be understood. The managers of the institution seeking aid must first appear before the State Committee on Charities and convince them of the need of this particular charity. When this is done, the matter is reported favorably to the Committee on Appropriations, who in turn must be convinced of the necessity of the work. A subcommittee is then appointed to visit the site of the institution, to pass judgment upon the equipment and management of the place, and to decide as to the amount that can be economically expended. The bill, with the amount decided upon by the committee, is then voted upon by the two Houses, and if their approval is given, it finally comes to the governor. He in turn must be convinced not only as to the need of the charity, but as to the ability of the managers of the institution to properly expend the money. Securing an appropriation thus requires the education of all the members of the Legislature. The men thus influenced are of the type that are hardest to reach, but when once favorably impressed can do much to advance the cause. Mr. Henry Phipps became interested in tuberculosis through the advice of a member of the State Board of Charities.

Each year the annual report is mailed to every member of the Legislature, to subscribers, and to thousands of people from whom funds are solicited. Newspapers comment on the report, partly on account of the work which it reports and partly on account of the large number of people interested. Public education is the result. This education is made more effective by the coöperation between the State and private charities.

AMOUNT OF MONEY RECEIVED AND SOURCES FROM WHICH IT HAS BEEN OBTAINED.

	Private Charity.	Patients' Board.	Loans not Paid.	State Appropriation.		Total Net Receipts.	Balance at End of Year.	Loans Made.	Loans Paid.
				For Maintenance.	For Buildings.				
1895	$3,853.54	..	..	..	..	$3,853.54	$1,941.25	..	..
1896	2,634.68	$65.00	..	..	..	2,699.68	2,487.45	..	..
1897	1,814.52	35.00	..	..	..	1,849.52	989.78	..	..
1898	5,804.06	54.67	..	..	..	5,858.73	2,051.61	..	..
1899	8,910.31	64.00	..	..	..	8,974.31	2,581.17	..	..
1900	10,519.34	161.14	..	..	..	10,680.48	3,213.38	..	..
1901	14,408.60	339.32	..	$3,750.00	..	18,497.92	665.39	..	..
1902	29,722.17	1,034.96	..	5,000.00	$34,335.22	70,092.35	681.95	..	..
1903	19,766.47	..	..	20,000.00	29,065.05	68,831.52	778.75	$11,450.00	$11,250.00
1904	20,077.64	..	..	25,000.00	41,599.73	86,677.37	3,426.69	29,930.57	9,630.57
1905	19,652.47	16,223.83	..	26,309.78	8,151.68	70,337.76	601.31	..	18,100.00
1906	17,296.36	21,474.43	..	32,440.22	1,848.33	73,059.34	764.03	26,500.00	27,500.00
1907	14,537.14	32,676.60	..	30,787.17	..	78,000.91	668.04	22,550.00	20,650.00
Loans (not paid)	..	..	$3,300.00	..	..	3,300.00	..	..	..
	$168,997.30	$72,128.95	$3,300.00	$143,287.17	$115,000.01	$502,713.43	..	$90,430.57	$87,130.57

Balance on hand.

In hands of Superintendent at White Haven Sanatorium	$600.00
In hands of Treasurer	68.04
Total	$668.04

The Plant at White Haven Sanatorium.—As far as completed this consists of 222 acres of ground, of which seventy acres are under cultivation. The buildings are as follows: The cottage for the superintendent. The administration building, not yet completed. This contains the dining hall, kitchen, and store-rooms on the first floor, with the laundry and laboratories in the basement and sleeping-rooms for the employees on the second floor. Connected with the main building by covered passageways are two infirmaries, one for men and one for women, each with a capacity of 15 beds. All patients are kept here on admission. In Department No. 1, for early cases who are on exercise, there are three brick cottages, each with a capacity of 16 beds; a large frame pavilion with a capacity of 35 beds; and eight frame shacks each with a capacity of 8 beds. At present one of the cottages is used temporarily for administration purposes and the housing of the resident physicians. An additional cottage is in course of erection.

In Department No. 2, for more advanced cases, who while capable of improvement cannot be put on much exercise, there are two infirmary shacks, one for men and one for women, each with a capacity of 21 beds. In the children's department, which is not yet completed, there are seven beds for girls. The present bed capacity for all departments is 211, of which 119 are for males and 92 for females.

In addition to the above buildings, there is a power-house, with its equipment of boilers, engines, and dynamos for supplying heat, power, and light to all buildings. This is managed as the department of heat, light, and power. There is a good-sized carpenter shop fitted up with the necessary tools and a surveyor's quadrant for the department of construction and repairs. There are five large buildings for chickens, of which the sanatorium now possesses 2500, and a full equipment of incubators and brooders. This is managed in conjunction with the farm, which comprises under its equipment a frame house for employees; a barn and six horses with a complete outfit of harness, wagons, and farm tools; and a greenhouse. There is a water plant, including wells, pumps, tanks, and reservoirs, and a sewage system.

Management of the White Haven Sanatorium.—Since the patients for the sanatorium come from all parts of the State, and since the members of the Board of Managers reside in Philadelphia, a central office is maintained at 204 South Seventh Street, Philadelphia. This office is under the management of an official secretary. From here all bills are paid and business transacted. The Board of Managers meets once a month, and once a year there is a general meeting of the members of the association. Applicants for admission on applying to the office are referred to the nearest examiner. The number of examiners at present is one hundred and forty-two and they are located throughout the State. The Philadelphia office has a duplicate list of beds and patients, so there is no delay in filling vacant beds.

Administration at White Haven.—The general control of the White Haven Sanatorium is under the direction of a superintendent—a medical man. Under him are the heads of the various departments. These departments are: Construction and repair; heat, light, and power; farm and poultry; housekeeping, including the laundry and kitchen; medical care and nursing. The medical care of the patients is looked after by the resident physicians under the guidance of the medical staff. There are four resident physicians now on duty. The medical staff consists of fourteen visiting physicians and a consulting physician. Each member of the staff visits the sanatorium once every two weeks, so that some member of the visiting staff is at the sanatorium nearly every day. Patients can be discharged by the visiting physicians only when the disease is arrested. If they are to be discharged before this stage is reached or because they are unsuitable, they must first be referred to the consulting physician. The nursing is done by the pupil nurses of the training school. This school is under the charge of the head nurse, who is a graduate of a general training school. The pupil nurses themselves are recruited from patients treated at the sanatorium who desire to take up nursing as an occupation after their own disease has become arrested. As a rule, such patients make good nurses. They have the sympathy which comes from a personal experience in taking the cure, and they are more hopeful than the nurse who has had only general training. Such nurses are sure that tuberculosis is curable because they themselves have been cured. They stand the work well because they are constantly living a correct life. So far as known, this is the first sanatorium to establish a training school of this type. The Henry Phipps Institute was the first to establish a training school for cured cases of tuberculosis, securing their pupil nurses from our White Haven patients. The White Haven training school has a capacity of eighteen nurses, two of the positions being filled by males. The school has now been in operation for one year and works out satisfactorily. The course is two years.

The Patients at the White Haven Sanatorium.—In order to properly appreciate the results obtained at any tuberculosis sanatorium the character of the patients treated must be fully understood. The ultimate results will depend upon the physical condition, that is, the amount of tissue destroyed, and the complications; upon the financial standing, which will influence the after-care, as in housing, food, and general surroundings; and upon the mental caliber, which determines the correctness with which the patient will follow the plan of life taught him at the sanatorium.

Physical Condition; Classification of Cases.—The White Haven Sanatorium is intended for favorable cases. The decision as to the prognosis is not made from the degree of involvement alone. A large proportion of our patients are cavity cases. For the purpose of comparison our cases have

been classified according to the method adopted by the National Association, with the following result: Incipient, 24.04 per cent.; moderately advanced, 40.39 per cent.; far advanced, 35.56 per cent. These figures are based upon 1780 cases.

Financial Status.—The prime requisite for admission to White Haven is the inability to pay for treatment at some private institution. A careful inquiry into the finances of each patient forms a part of the admission examination. Consequently the vast majority of the patients are either working people or children of working people. The sanatorium has at present 100 free beds; 69 beds in No. 1 Department at $7 per week; 42 beds in No. 2 Department at $9 per week. Applications are made for each list and patients are admitted in order of application.

Mental Status of Patients.—Many of the patients come from the lower and middle walks of life and have only an ordinary degree of intelligence. Many are Russian Jews, Polanders, Italians, and other recent emigrants, and are unfamiliar with English. These do not understand directions well, and when they do go out, it is difficult for them to secure any but the hardest kind of work. A relatively small number of negroes are treated each year.

Method of Treatment.—Treatment at the White Haven Sanatorium is based upon feeding, rest, and fresh air. An important feature is a graded system of useful, purposeful work when the patient's condition is sufficiently improved to permit of exercise. It was recognized at the time of opening the sanatorium that it was necessary to prepare patients to resume work on their return home. A large part of the work of the sanatorium has always been done by the patients. As White Haven was the pioneer in this plan, there was no precedent to follow, and the present system gradually evolved itself. After two years of trial without classification both the work and the patients were classified. The routine plan is one month's rest in the infirmary. Exercise is now begun if the condition is satisfactory. The usual routine is one hour's work daily.

Classification of the Work Done by the Patients at the White Haven Sanatorium.

Class A.—The work under this division is light, and is suitable for patients who are on from one to four hours' work. It can be done by even the most delicate. In this class are:

Making pasteboard sputum-cups.
Mending linen by hand.
Preparing vegetables (peeling potatoes, apples, etc., shelling peas and beans, etc.).
Polishing brass and silver.
Picking up papers on lawn.

Class B.—The work in this class requires a moderate degree of strength and is suitable for moderately strong patients who are able to do from four to six hours' work a day.

Carrying dinners to cottages (distance of about 300 feet).
Sweeping porches and kiosks.
Clerical work in office.
Wiping off window-sills, etc.
Helping serve lunches and washing lunch dishes.
Cleaning beds.
Cleaning electric light globes.
Attending to superintendent's cottage.
Gathering fruit and vegetables.
Making beds.
Mending linen, machine work.

Class C.—In this division are occupations which require strength as well as endurance. They are given to patients who are about to be discharged as disease arrested. Patients under this class are able to work from six to eight hours a day.

Assisting driver on wagon.
Assisting receiving clerk with milk and freight.
Assisting on chicken farm.
Mowing and raking lawn.
Chopping kindling wood.
Carrying blankets and dress-suit cases from fumigating room to laboratory.
Running steam pump.
Carrying dinners to pavilion (distance of about 100 feet).
Cleaning windows.
Mopping cottage rooms.

To be Done by Patients without Tubercle Bacilli in Sputum.—Stemming berries; preparing fruit for the table; filling salt and pepper shakers, sugar bowls, vinegar cruets, etc.

This method has been in use for seven years, and is by far the most satisfactory so far advised. It is possible to control the exercise within very narrow limits. Each piece of work has been done so many times by so many different patients that the amount of energy necessary to its completion is definitely known. Besides, each patient realizes the value of what is accomplished, and as his working capacity increases he knows that he is improving. Doing work under constant supervision and with regular records of weight, temperature, and pulse teaches the patient how to recognize when he is failing in strength and how to guard himself. There is absolutely no danger of overexercise in work of this sort, such as so often occurs in patients who get their exercise in walks and games.

Results at the White Haven Sanatorium.—The total number of patients treated since the opening in August, 1901, up to February 29, 1908, is 2749. Statistics were available upon 1780 cases.

CLASSIFICATION ACCORDING TO THE PLAN ADOPTED BY THE NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS. CASES WHICH REMAINED IN THE SANATORIUM LONGER THAN ONE WEEK.

First Stage. Incipient (favorable)	428 (24.04%).	Males, 277;	females, 151
Second Stage. Moderately advanced	719 (40.39%).	" 439;	" 280
Third Stage. Far advanced	633 (35.57%).	" 397;	" 236
Total	1780		

LENGTH OF STAY OF PATIENTS WHO REMAINED LONGER THAN ONE WEEK.

Remaining more than three months	983 (55.22%).	Males, 598;	females, 385
Remaining more than one month and less than three months	529 (29.72%).	" 349;	" 180
Remaining more than one week and less than one month	268 (15.06%).	" 166;	" 102

It is extremely difficult to get patients to stay after cessation of symptoms and marked increase in weight, and yet where the patient must earn his living by manual labor, it is of the greatest importance to get him accustomed to actual work before allowing him to return to home surroundings.

A detailed report of results on discharge is here given only in those cases which remained longer than three months. While a shorter period is productive of much benefit, and the habits learned may lead to a permanent cure, the credit of all the improvement does not belong to the sanatorium. Many letters have been received from patients who remained but a short time, and who have since gone on to complete cure, but they were exceptionally intelligent individuals.

CLASSIFICATION OF MALE PATIENTS WHO REMAINED LONGER THAN THREE MONTHS.

Incipient (favorable)	146 (24.4%)
Moderately advanced	366 (61.2%)
Far advanced	86 (14.4%)
Total	598 (100 %)

Up to the time when the National Association agreed upon a classification for discharged patients there was no generally accepted standard. The standard by which the White Haven patients were gaged is much more exacting than generally employed. Thus, "disease arrested" requires cessation of the general signs of disease, and that the patient has worked eight hours per day for one month without elevation of the temperature or pulse-rate. "Very much improved" requires more than four hours' work per day, together with marked improvement in the general condition, and, of course, absence of temperature and increased pulse-rate. "Much improved" requires between one and three hours' work per day, together with improvement in the physical condition along with normal temperature. "Improved" requires gain in weight with lessening of the temperature and pulse-rate.

RESULTS ON DISCHARGE FOR THE DIFFERENT STAGES (MALES).

Stage 1.—Incipient (Favorable).

Disease arrested	97 (66.44%).	Average gain in weight,	19.03 lbs.
Very much improved	14 (9.59%).	" " " "	27.25 "
Much improved	15 (10.27%).	" " " "	17.75 "
Improved	19 (13.01%).	" " " "	12.03 "
Not improved	1 (0.68%).	" " " "	1.75 "
Total	146		

Stage 2.—Moderately Advanced.

Disease arrested	149 (40.72%).	Average gain in weight,	20.00 lbs.
Very much improved	29 (7.92%).	" " " "	19.00 "
Much improved	80 (21.86%).	" " " "	17.50 "
Improved	89 (24.32%).	" " " "	12.90 "
Not improved	18 (4.91%).	" loss " "	4.64 "
Died	1 (0.27%).	" gain " "	18.00 "
	— (100 %).		
Total	366		

Stage 3.—Far Advanced.

Disease arrested	23 (26.75%).	Average gain in weight,	17.63 lbs.
Very much improved	4 (4.65%).	" " " "	23.00 "
Much improved	22 (25.58%).	" " " "	11.15 "
Improved	34 (39.54%).	" " " "	11.75 "
Not improved	2 (2.32%).	" " " "	0.50 "
Died	1 (1.16%).	" " " "	0.0
	— (100 %).		
Total	86		

CLASSIFICATION OF FEMALE PATIENTS WHO REMAINED LONGER THAN THREE MONTHS.

Stage 1.	Incipient (favorable)	86 (22.34%)
Stage 2.	Moderately advanced	250 (64.93%)
Stage 3.	Far advanced	49 (12.73%)
		— (100 %)
Total		385

RESULTS ON DISCHARGE FOR THE DIFFERENT STAGES (FEMALES).

Stage 1.—Incipient (Favorable).

Disease arrested	47 (54.65%).	Average gain in weight,	19.15 lbs.
Very much improved	9 (10.46%).	" " " "	24.3 "
Much improved	14 (16.28%).	" " " "	19.87 "
Improved	14 (16.28%).	" " " "	11.27 "
Not improved	2 (2.33%).	" " " "	5.63 "
	— (100 %).		
Total	86		

Stage 2.—Moderately Advanced.

Disease arrested	110 (44.0 %).	Average gain in weight,	lbs.
Very much improved	24) 9.6 %).	" " " "	21.63 "
Much improved	54 (21.6 %).	" " " "	24.95 "
Improved	51 (20.4 %).	" " " "	21.41 "
Not improved	9 (3.6 %).	" " " "	14.00 "
Died	2 (0.8 %).	" " " "	3.90 "
	— (100 %).	" " " "	14.12 "
Total	250		

STAGE 3.—FAR ADVANCED.

Disease arrested	19 (38.90%).	Average gain in weight,	20.61 lbs.
Much improved	14 (28.50%).	" " " "	14.37 "
Improved	12 (24.44%).	" " " "	15.12 "
Not improved	4 (88.16%).	" " " "	2.81 "
	-- (100 %).	" " " "	
Total	49		

ULTIMATE RESULTS.—The true test of the work done by any sanatorium is the length of time that the patient remains well after the course of treatment. This does not necessarily mean that the patient goes back to the same occupation, as this is often impossible. It must be remembered that tuberculosis always destroys tissue, and when the destruction of tissue is very great, the patient's working power is impaired, even though complete arrest of the disease is obtained. Under these circumstances the patient may be unable to perform certain heavy kinds of work. In general, it may be said that retention of health after leaving a sanatorium is much more constant in those whose occupations are of the lighter kind. The good condition of the nurses at the Phipps Institute is evidence of this fact.

FIRST STAGE (MALES AND FEMALES).

Number of cases heard from, discharged "disease arrested"..... 41
Well, 48.78%; living, but not well, 48.78%; dead, 2.44%.
Number of cases heard from discharged "much improved"..... 24
Well, 16.76%; living, but not well, 29.17%; dead, 54.16%.
Number of cases heard from discharged "improved"..... 15
Well, 33.33%; living, but not well, 20.00%; dead, 46.67%.

SECOND STAGE.

Number of cases heard from, discharged "disease arrested"..... 87
Well, 39.08%; living, but not well, 42.53%; dead, 18.39%.
Number of cases heard from, discharged "much improved"..... 76
Well, 25%; living, but not well, 28.95%; dead, 46.05%.
Number of cases heard from, discharged "improved" 49
Well, 8.24%; living, but not well, 22.30%; dead, 69.46%.

THIRD STAGE.

Number of cases heard from, discharged "disease arrested"..... 12
Well, 41.67%; living, but not well, 41.67%; dead, 16.66%.
Number of cases heard from, discharged "much improved"..... 8
Well, 25%; living, but not well, 37.5%; dead, 37.5%.
Number of cases heard from, discharged "improved"..... 9
Well, 11.11%; living, but not well, 22.22%; dead, 66.66%.

ALL STAGES.

Number of cases heard from, discharged "disease arrested"..... 140
Well, 42.14%; living, but not well, 44.28%; dead, 13.57%.
Number of cases heard from, discharged "much improved"..... 108
Well, 23.14%; living, but not well, 28.7%; dead, 48.14%.
Number of cases heard from, discharged "improved"..... 73
Well, 13.69%; living, but not well, 21.9%; dead, 64.38%.

FEMALE PATIENTS REMAINING OVER THREE MONTHS AND DISCHARGED FROM THE WHITE HAVEN SANATORIUM FROM AUGUST, 1901, TO FEBRUARY 28, 1907 INCLUSIVE.

	Result on Discharge.	Total Number of Cases.	Number of Cases Heard from.	Ultimate Result.	Number of Years Heard from after Discharge.						No Record of Date.
					1	2	3	4	5	6	
Incipient: Number of cases 86; Number of cases heard from 29	Disease arrested	47	13	Well 6	1	1	1	1	1	1	0
				Living 7	6	0	1	0	0	0	0
				Dead 0	0	0	0	0	0	0	0
	Much improved	23	7	Well 1	0	0	1	0	0	0	0
				Living 5	2	1	1	1	0	0	0
				Dead 1	0	1	0	0	0	0	0
	Improved	14	9	Well 3	0	1	1	0	0	1	0
				Living 2	1	0	1	0	0	0	0
				Dead 4	0	3	0	0	0	0	1
	Not improved	2	0	Well 0	0	0	0	0	0	0	0
				Living 0	0	0	0	0	0	0	0
				Dead 0	0	0	0	0	0	0	0
	Died	0	..	..	..	..	..	..	..	..	..
Moderately advanced: Number of cases 250; Number of cases heard from 85	Disease arrested	110	36	Well 21	6	4	5	3	3	0	0
				Living 12	11	1	0	0	0	0	0
				Dead 3	1	2	0	0	0	0	0
	Much improved	78	29	Well 10	1	2	3	1	3	0	0
				Living 7	3	2	2	0	0	0	0
				Dead 12	4	4	1	0	0	0	3
	Improved	51	17	Well 2	0	1	0	0	1	0	0
				Living 5	2	2	0	0	1	0	0
				Dead 10	5	0	1	0	0	0	4
	Not improved	9	3	Well 0	0	0	0	0	0	0	0
				Living 0	0	0	0	0	0	0	0
				Dead 3	0	0	0	0	0	0	3
	Died	2	0	..	..	..	..	..	..	..	..

Far advanced: Number of cases..... 49 Number of cases heard from . 10	Disease arrested.....	19	6	Well..... 2	0	0	0	1	0	1	0
				Living..... 3	3	0	0	0	0	0	0
				Dead..... 1	1	0	0	0	0	0	0
	Much improved.....	14	0	Well..... 0	0	0	0	0	0	0	0
				Living..... 0	0	0	0	0	0	0	0
				Dead..... 0	0	0	0	0	0	0	0
	Improved.....	12	2	Well..... 0	0	0	0	0	0	0	0
				Living 0	0	0	0	0	0	0	0
				Dead 2	1	1	0	0	0	0	0
	Not improved.....	4	2	Well 0	0	0	0	0	0	0	0
				Living 0	0	0	0	0	0	0	0
				Dead..... 2	1	0	0	0	0	0	1
	Died.....	0	..	..	..	..	..	..	..	..	..

MALE PATIENTS REMAINING OVER THREE MONTHS AND DISCHARGED FROM THE WHITE HAVEN SANATORIUM FROM AUGUST, 1901, TO FEBRUARY 28, 1907, INCLUSIVE.

	Result on Discharge.	Total Number of Cases.	Number of Cases Heard from.	Ultimate Result.	Number of Years Heard from after Discharge.						No Record of Date.
					1	2	3	4	5	6	
Incipient: Number of cases .....146 Number of cases heard from . 51	Disease arrested.....	97	28	Well.....14	2	3	4	2	2	1	0
				Living.....13	7	1	3	2	0	0	0
				Dead..... 1	0	0	0	0	1	0	0
	Much improved.....	29	17	Well..... 3	0	1	1	0	1	0	0
				Living..... 2	1	0	1	0	0	0	0
				Dead.....12	1	4	0	0	0	0	7
	Improved.....	19	6	Well..... 2	0	0	0	2	0	0	0
				Living..... 1	0	1	0	0	0	0	0
				Dead..... 3	0	1	0	0	0	0	2
	Not improved.....	1	0	Well..... 0	0	0	0	0	0	0	0
				Living.....0	0	0	0	0	0	0	0
				Dead..... 0	0	0	0	0	0	0	0
	Died.....	0	0	..	..	..	..	..	..	..	..

MALE PATIENTS REMAINING OVER THREE MONTHS AND DISCHARGED FROM THE WHITE HAVEN SANATORIUM FROM AUGUST, 1901, TO FEBRUARY 28, 1907, INCLUSIVE.—(*Continued.*)

	Result on Discharge.	Total Number of Cases.	Number of Cases Heard from.	Ultimate Result.	Number of Years Heard from after Discharge.						No Record of Date.
					1	2	3	4	5	6	
Moderately advanced: Number of cases....366 Number of cases heard from .134	Disease arrested.....	149	51	Well.....13	2	5	2	1	2	1	0
				Living.....25	8	9	5	2	1	0	0
				Dead.....13	2	5	1	1	0	1	3
	Much improved.....	109	47	Well 9	4	3	0	1	1	0	0
				Living.....15	4	5	4	2	1	0	0
				Dead 23	9	3	4	0	0	0	7
	Improved.....	89	32	Well..... 2	0	2	0	0	0	0	0
				Living..... 6	2	3	0	1	0	0	0
				Dead.....24	9	2	1	0	0	0	12
	Not improved.....	18	4	Well..... 1	1	0	0	0	0	0	0
				Living..... 0	0	0	0	0	0	0	0
				Dead..... 3	1	1	0	0	0	0	1
	Died.....	1	0	..	..	..	..	..	..	..	..
Far advanced: Number of cases..... 86 Number of cases heard from . 23	Disease arrested.....	23	6	Well..... 3	0	1	1	0	0	1	0
				Living..... 2	1	0	1	0	0	0	0
				Dead..... 1	0	0	0	0	0	0	1
	Much improved	26	8	Well..... 2	0	1	1	0	0	0	0
				Living..... 3	2	0	0	1	0	0	0
				Dead..... 3	0	2	1	0	0	0	0
	Improved.....	34	7	Well..... 1	1	0	0	0	0	0	0
				Living..... 2	1	0	1	0	0	0	0
				Dead..... 4	1	1	0	0	0	0	2
	Not improved.....	2	2	Well..... 0	0	0	0	0	0	0	0
				Living..... 0	0	0	0	0	0	0	0
				Dead..... 2	1	0	0	0	0	0	1
	Died.....	1	0	..	..	..	..	..	..	..	..

Cooperación entre el Estado y las Corporaciones Privadas.—(STANTON.)

Se presenta una comunicacion en cuanto al objeto de la institucion y los medios de soporte de esta, con atencion especial al valor educativo de la caridad privada cuando esta va apoyada por el Estado.

Una descripcion del plantel, el manejo, se dan los detalles de la administracion del Sanatorio de White Haven.

Los pacientes tratados en el sanatorio son conciderados desde un punto de vista de sus condiciones fisicas, estado pecuniario y mental. En la descripcion del tratamiento, se da especial atencion en cuanto al trabajo apropiado y el grado de este mientras este esta en el sanatorio. Se da una descripcion de las varias ocupaciones, la cantidad de trabajo es gradualmente aumentado de una à ocho horas diarias.

Se da en detaile los resultados del tratamiento para los varones y para las mujeres; los pacientes son agrupados de acuerdo con el estado de la enfermedad.

Se presentan los cuadros de los ultimos resultados en un cierto numero de les casos que se han dado de baja en la institucion. De 140 casos en 1907, que se les dio de baja la enfermedad detenida, 42.14% viven en buena salud, 44.28% viven, pero no gozan de buena salud y 13.57% han fallecido. Esto representa los resultados obtenidos de los casos en todos los estados de la enfermedad.

Coopération de l'Etat et des Corporations privées dans la croisade contre la tuberculose dont le Sanatarium de White Haven nous fournit un exemple.—(STANTON.)

Un rapport du but de l'Institution et des moyens de subsistance est donné en vue de montrer plus spécialement la valeur éducative de la charité privée quand elle est combinée avec l'assistance de l'Etat.

Une description générale de l'établissement, l'organisation, l'administration du sanatorium de White Haven est donnée en détail.

Les malades traités dans le sanatorium, sont considerés au point de vue de leur condition physique et de leur état financier et mental.

Dans la description du traitement suivi, on s'est plus particulièrement appuyé sur l'importance d'un travail choisi et gradué pour les malades pendant leur séjour dans le Sanatorium. Une classification des diverses occupations est donnée, la quantité de travail étant graduellement augmentée de une à huit heures par jour.

Les résultats du traitement des hommes et des femmes sont donnés en détail, les malades étant groupés selon le degré de la maladie.

Des tableaux sont donnés indiquant le dernier résultat d'un certain nombre de cas qui avaient été renvoyés de l'Institution. Sur les 140 cas dont on avait reçu des nouvelles, en 1907, et qui avaient été renvoyés comme "maladie arrêtée," 42.14% étaient vivants et se portaient bien, 44.28%

vivaient mais ne se portaient pas bien; et 13.57% étaient morts. Ces chiffres représentent les résultats obtenus dans des cas à tous les dégrés de la maladie.

Kooperation zwischen Staat- und Privat-Untersuchungen in der Bekämpfung der Tuberkulose, wie veranschaulicht im White Haven Sanatorium.—(STANTON.)

Bericht über den Zweck der Anstalt und deren Erhaltungsweise, mit spezieller Rücksicht auf den Unterrichtswerth der privaten Wohlthätigkeit, wenn mit staatlicher Beihilfe verbunden.

Folgt eine allgemeine detailirte Beschreibung der Anstalt und Administration des White Haven Sanatoriums.

Die Patienten des Sanatoriums sind mit Rücksicht auf ihren physikalischen Zustand, sowie auf Grund ihrer finanziellen und mentalen Verhältnisse gruppirt. In der Schilderung der Behandlungsweise wird mit spezieller Betonung auf die Wichtigkeit des Umstandes hingewiesen, dass die Patienten im Sanatorium angemessene fallweise geregelte Arbeiten verrichten. Hier schliesst sich eine Klassification der verschiedenen Beschäftigungen an; die Arbeitszeit wird graduell von einer Stunde auf achtim Tage erhöht.

Resultate der Behandlung bei Männern und Frauen sind in Detail angeführt; die Gruppirung der Patienten geschah je nach dem Stadium des Leidens.

Tabellen erhellen die Endergebnisse in einer Anzahl von Fällen, die aus der Anstalt entlassen wurden. Von 140 Fällen, mit der Bemerkung "Prozess stationär" entlassen und im Jahre 1907 wieder berichtet, waren 42.14% am Leben und wohlauf, 44.28% am Leben, doch leidend, und 13.58% gestorben. In der Serie sind Fälle jeden Grades vertreten.

DISCUSSION.

EDWARD F. GOLTRA (St. Louis): I have been requested by General Wyman, your Chairman, to state as a business man or man of affairs the impressions gathered by me during the past two years as president of the St. Louis Society. I am compelled to speak extemporaneously, which I regret, owing to the vast importance of this subject. Let me say, in the first place, that I greatly esteem the honor conferred upon me by General Wyman, in asking me, a business man, and therefore a layman, to address an audience composed principally of physicians. But the time has come when the men of affairs of this country must coöperate with the physicians in their noble, philanthropic, and unselfish efforts to protect all against the greatest cause of disease and death. I honor you, gentlemen, for the unselfish and spontaneous action which you exhibit here in furthering a project which can only have as a result the reduction of your income and a limitation upon your practice. In order to carry on a cam-

paign successfully in any new field of effort, education on the subject is absolutely essential, and for the past two years I have been under the tutelage of able physicians on the subject of tuberculosis. The exhibit displayed in this building is certainly a wonderful and graphic analysis of the subject, and it seems to me that only the greatest good could come from a permanent tuberculosis exhibit of this nature in Washington and in New York, where those interested could come and study the same. It has been the experience of the local society in St. Louis that the business man has been the hardest to get to take interest in the work, and still, of all the people, he is the most important to reach, and his coöperation it is most important to secure. Of all public undertakings I can truthfully say I know of none at present so important to humanity at large as the work now being undertaken by you gentlemen, and as a business man it seems to me the time has come to get results. Great work has been done and is being done along the line of study and research, and we must keep it up, but from now on let us take up the legislation side of the proposition more zealously than we have heretofore. We Americans are prone to make laws. We have many laws for the regulation of business, but we do not possess sufficiently stringent laws for the protection of the public health.

In many cities the health authorities have power to segregate all cases of contagious disease with the exception of consumption, notwithstanding the fact that consumption causes several times as many deaths as all other contagious and infectious diseases. I am told that consumption is spread by the consumptive, animal and human. In the case of the former, the problem is comparatively easy; with the latter, the problem is very hard. In the case of the latter, certain it is that we must first make provision to take care of him if he cannot properly care for himself. We must cure him if we can, but we must always take care of him. A great deal is being said about compulsory segregation of consumptives, and you doctors are compelled to report cases, and are fined if you do not report them. That is good as far as it goes; but having located a case, it is only the first step; it should then be the duty of the proper authorities to exercise proper supervision over such cases. I am prepared to state that in my judgment the time has now arrived when municipalities, small as well as large, should place on their statute-books laws giving to the local authorities power to segregate such cases. I would recommend, first, the care of the consumptive; and, second, the control of consumption. By explaining to the business man what a necessary thing the fight against the "great white plague" is, you will get their coöperation, for you are all influential in your respective communities, and you can, more than any others, interest the men of affairs in this fight. Persuade them, and the necessary legislation will be forthcoming.

SECTION VI.

State and Municipal Control of Tuberculosis (*Continued*).

SEVENTH SESSION.

Thursday afternoon, October 2, 1908.

TUBERCULOSIS IN THE SCHOOLS. FACTORY INSPECTION. HOUSE VENTILATION. RAILWAY SANITATION.

Section VI was called to order by the President, Surgeon-General Walter Wyman, on Thursday afternoon, October 2d, at half-past two o'clock.

His Excellency, Dr. Simon Th. Unterberger, Privy Councilor and Honorary Physician to His Majesty the Czar of Russia, presented to the Section a copy of the Russian laws on tuberculosis. Special laws in regard to tuberculosis do not exist in Russia, only laws and regulations which relate in general to infectious diseases.

These laws are as follows: *Codex der medicinalpolizeilichen Bestimungen, Capitol I, Abtheilung III.*

740. The owner or renter of a house or the renter of a house belonging to the crown, the owner of a hotel or any other institution where travelers stop, is required to make immediate report to the local police as soon as he learns that any one afflicted with spotted fever or any other infectious diseases is in the house or institution. In the same manner every person, during an epidemic, is required to give, to the landlord or police, a notice of every case occurring in his house.

741. All physicians, contract physicians as well as those in private practice, in all divisions of the government, are required, independently of the periodical reports which they must submit to the proper medical authorities, to give notice to the local medical authority of every case which, at any time, may come either under their charge or to their knowledge of epidemic infections and contagious diseases: spotted fever, smallpox, measles, scarlet fever, etc.

This year the Ministry of the Interior issued the following order in regard to tuberculosis. In "Journal des Medicinal-Raths," under date of April 1st, and in the communication of the Ministry of the Interior (under date of May 17th) it was declared, in reference to sections 740 and 741, that tuberculosis belongs to the infectious diseases, and that all the regulations in regard to infectious disease hold good also for tuberculosis. These measures can only be executed to the extent determined by the assistants, and the means which are at hand for the purpose. Therefore, it is recommended, only to the authorities of villages and cities, to carry out the compulsory notification of every case of tuberculosis, and the necessary sanitary measures against its spread.

The registration of tuberculosis of the lungs according to its stages will be carried out in accordance with the plan which was determined upon at the last conference in Vienna.

In the army (under date of March 8, 1905) and in the navy (order of November 20, 1906) all soldiers and sailors who are discharged from hospitals with sputum containing bacilli are sent directly to their homes, and, therefore, do not enter the barracks again.

MEDICAL FACTORY INSPECTION.

By Dr. G. M. Price,
New York.

Medical factory inspection is a legitimate exercise of the police power of the State, because it would be a most powerful factor in the modern struggle against tuberculosis, and in the protection of the life and health of a great part of mankind.

By the term "medical factory inspection" I understand a thorough supervision of industrial production by properly qualified members of the medical fraternity. It is over two hundred years since Ramazini called the attention of the world to the risks and dangers to which many workers in many trades are exposed, and, since then, it had been amply proved that the morbidity and mortality of the working class are much above the average, and also that many, if not most, of the diseases and dangers of occupations are wholly unnecessary and preventable.

The *laisser-faire* policy of the early factory period, during which most of the abuses of women and child labor, unhygienic factory conditions, and of

a total disregard of the health and life of the employees had greatly prevailed, is, happily, a thing of the past; nor is State sanitary control regarded any more as a specter of a "coming slavery"; and any exercise of the police power of the State is thoroughly justified if it can be shown that it will promote public health.

As a most valuable prophylactic measure in the prevention of disease and promotion of public health I consider medical factory inspection. By medical factory inspection I comprehend a most thorough and far-reaching industrial supervision, as follows:

(*a*) State licensing of trades and industrial establishments;

(*b*) Physical examination of all candidates for employment;

(*c*) Periodical examination of all employees;

(*d*) A study of industrial pathology, and

(*e*) Appointment of qualified physicians by the State labor bureaus.

Such a scheme of medical supervision of industries will, I trust, not be regarded as too revolutionary or socialistic, for it is but a logical extension of principles upon which much of existing sanitary legislation is based, and a step in accordance with sanitary measures already in force.

(*a*) The licensing of trades is already an established fact in many States, and has been justified, either by reason of the offensive nature of the trades, such as of slaughter-houses, bone-rendering, carpet-cleaning, and other establishments; or by reason of the necessity for a specially qualified personnel, as in the plumbing, locomotive-engineering, and other trades. There is no reason why preliminary licensing of trades should not be extended, first, to all dangerous and offensive trades and establishments, and then to all other trades. Such a licensing, by reason of the preliminary inspection and insistence upon hygienic requirements, would be a powerful weapon in the prevention of industrial diseases and accidents and in the promotion of public health.

(*b*) The preliminary physical examination of candidates for employment is already established in the Federal, State, and municipal services, and has also been adopted by many private corporations, especially railroads, etc. Indeed, there could not be any greater radical measures against excessive morbidity in industries than a rigid examination and rejection of all physically unfit for their duties, and of those suffering from incipient diseases.

(*c*) If to the preliminary physical examination of employees we should add stated periodical examinations in all industrial establishments, a mode of procedure already in practice in many public and private institutions, we should certainly be able to save more lives than by all the other preventive measures.

(*d*) The study of industrial pathology is of paramount importance in the prophylaxis of industrial diseases, and cannot be properly carried on but

under conditions which would allow the supervision of industries by medical men, as has been amply proved by the great work accomplished in this direction by the physicians of German Krankenkassen-vereins.

(*e*) It is obvious that such a scheme of industrial supervision as outlined cannot be carried on without the appointment of properly qualified physicians.

Medical factory inspection is a theme already widely discussed abroad, and one of the resolutions of the last International Congress of Hygiene, in Berlin, 1907, was that this subject be agitated for and the public be educated to regard it an important sanitary measure. In Belgium there were appointed, in 1895, four local and one general medical factory inspectors. In the Netherlands there has been a "medical factory adviseur" since 1903. In Great Britain the participation of physicians in factory inspection dates from 1833, when the corps of certifying surgeons was established. There are more than 2000 such surgeons at the present time, and their activity in industrial supervision is very pronounced. Since 1895 there is also a medical factory inspector for the whole kingdom. There is also a compulsory notification of industrial poisonings. In Germany there is, since 1883, a law requiring the licensing of certain dangerous trades, and the preliminary physical examination of employees before employment, as well as a periodical examination after employment, and since 1883 the participation of physicians in industrial supervision is steadily increasing.

In the United Stated the State of New York is the pioneer in the appointment (1907) of a medical factory inspector, a progressive measure due to the demand of Commissioners Sherman and Williams, of the New York State Labor Bureau. Factory legislation in the United States has been more of an economic character, owing, probably, to the fact that it was promoted mostly by labor unions, but it is time that such legislation should partake more of a sanitary character, especially in the proper control of dangerous and offensive trades. This can be accomplished only by the agitation by medical organizations and by a body like this.

Conclusions.

1. Medical factory inspection is a legitimate exercise of the police power of the State, because it would be a powerful weapon in the prevention of disease.

2. Most occupations have elements of danger causing mutilation, disease, and death of the workers.

3. Most, if not all, of the dangers and risks of trades are preventable.

4. An ideal industrial supervision should include the following: (*a*) State licensing of trades and industries; (*b*) physical examination of all employees before employment; (*c*) periodical examination of all employees;

(*d*) study of industrial pathology; and (*e*) appointment of qualified physicians.

5. The appointment of physicians as factory inspectors has been agitated for in the Continental press, and has already been introduced in some countries, as well as by the State of New York.

6. This is a proper subject for the National Association for the Study and Prevention of Tuberculosis.

Inspeccion Médica de las Factoriás.—(PRICE.)

La inspección médica de las factorías es un ejercicio legítimo del poder de la policía del Estado, por que esto será un factor poderoso en la prevención de la enfermedad.

La mayor parte de las ocupaciones tienen elemetos de peligro capaces de causar mutilación, enfermedad y muerte de los obreros.

La mayor parte, sino todos los peligros de las ocupaciones pueden prevenirse. Una supervisión ideal de las industrias debe incluir lo siguiente:

(*a*) Licencia del Estado para las ocupaciones y las industrias.

(*b*) Examen físico de todos los candidatos de empleos.

(*c*) Examen periódico de los empleados.

(*d*) Estudio de la Patología industrial.

(*e*) Nombramiento de médicos competentes para la inspección de las factorias.

El nombramiento de médicos para la inspección de las fabricas se ha comentado en la prensa continental, y ya se encuentra introducida en algunos países lo mismo que en New York.

Inspection médicale des Usines.—(PRICE.)

L'inspection médicale des usines est un exercice légitime du pouvoir de police de l'Etat, parce qu'elle est un facteur puissant pour la prevention des maladies. La plupart des occupations ont des éléments de danger qui causent la mutilation, la maladie, et la mort des ouvriers. La plupart et peut-être tous les dangers et les risques des métiers peuvent etre évités. Une surveillance idéale d'industrie devrait comprendre les points suivants:

(*a*) Licensiement par l'Etat des métiers et des industries.

(*b*) Examen physique de tous ceux qui se présentent pour travailler.

(*c*) Examen périodique de tous les employés.

(*d*) Etude de pathologie industrielle, et

(*e*) Emploi de médecins capables comme inspecteurs des usines.

L'emploi de médecins comme inspecteurs des usines a été discuté dans la presse continentale, et il a été déjà introduit dans quelques pays, de même qu'à New York.

Ärztliche Fabriken-Inspektion.—(Price.)

Ärztliche Inspektion von Fabriken ist eine legitime Ausübung der Polizeigewalt des Staates, weil sie ein mächtiger Faktor in der Verhütung von Krankheiten sein würde.

Die meisten Beschäftigungen besitzen Elemente von Gefahr, die Verstümmelung, Krankheit und Tod der Arbeiter verursachen können.

Die meisten, wenn nicht alle der Gefahren und Risikos in den Gewerben sind verhütbar. Eine ideale industrielle Aufsicht sollte die folgenden Dinge einschliessen:

(*a*) Staatliche Lizensierung von Gewerben und Industrien.
(*b*) Körperliche Untersuchung aller Arbeitsuchenden.
(*c*) Periodische Untersuchung aller Angestellten.
(*d*) Studium der industriellen Pathologie.
(*e*) Anstellung von praktischen Ärzten als Fabrikinspektoren.

Die Anstellung von Ärzten als Fabrikinspektoren wurde in der kontinentalen Presse erörtert und empfohlen, und ist auch in einigen Ländern sowohl als auch in New York eingeführt worden.

DISCUSSION.

Dr. C. A. Harper (Wisconsin) said that there are laws in Wisconsin which provide for the inspection of factories, live-stock, and dwelling-houses. This inspection is carried out by the Department of Labor, in conjunction with the Board of Health. The law for the inspection of dwellings and factories is practically the same as that of the State of New York. The old factories of the State are run on the "old plan of inspection," but great efforts are being made to improve the inspection in the same way as it is effected in the new factories, by making important changes which provide for plenty of fresh air for the operators. Wisconsin had been making a great crusade against tuberculosis: a movement which at first met with resistance on the part of the factory owners; but conditions have now changed and the inspection is carried out with the help of the factory owners, who have found that this improvement has an economic value to them.

Richard H. Lewis (Raleigh, North Carolina): We all will admit that medical inspection of factories would be of value in the crusade against tuberculosis, and it is not worth while to discuss that aspect. Neither is it worth while to go into detail as to methods of inspection. The practical

question is, How are we to secure the inspection? Some of the speakers have advocated coercion by legislation. Now, in my judgment, that is a mistake. The people among whom I live, and who are, I take it, very much like other Americans, are very docile people, as a rule, but whenever an attempt has been made to drive them, they have rebelled. It is well known that laws cannot be enforced unless public opinion is behind them, and my own idea is that the best plan would be to have some sensible and reasonable person lay the facts before the manufacturers, and, as they are generally not only sensible, but also humane and able to appreciate the advantages that would accrue to themselves as well as to their employees, they would almost surely respond. It would also be well to educate the employees as to the conditions necessary to their health. Ninety-nine out of one hundred, in all probability, would not heed the instructions, but the one-hundredth man would learn, and the result would be such a sentiment among them as to demand of the employer such conditions as may be necessary for health. The demand for mill labor is so great that the employer would be particular to respond to any reasonable demands. It is easier to lead people of intelligence and force of character than it is to drive them.

SANITARY MEASURES IN THE HOME IN RELATION TO TUBERCULOSIS.

By Dr. W. A. Evans,
Commissioner of Health, Chicago.

Tuberculosis is a disease of major sanitary importance. This need not be discussed. Parenthetically, I would like to suggest that the next revision of the international classification should divide diseases into groups according as they are or are not of sanitary importance.

A study of Chicago statistics proves that consumption and its two companion diseases, pneumonia and bronchitis, are becoming of greater importance each year. The increase in pneumonia is apparently of greater importance than it really is. Much of the bronchitis of the leaner pneumonia years is now found in the pneumonia column. We decrease the sum total of statistical error when in mortality tables we call all acute bronchitis pneumonia, and all chronic bronchitis tuberculosis.

Viewing it as a disease of major sanitary importance, we need only consider two means of spreading—air and milk.

Beginning with 1878 and studying the three ten-year periods, we find that the death-rate from consumption is falling very slowly.

1878 to 1887	17.151	per 10,000 living
1888 to 1897	17.204	" 10,000 "
1898 to 1907	15.440	" 10,000 "

The rate for 1908 will be (materially) less than for the ten-year period or for any year for the thirty-year period. While this is true, the consumption mortality in relation to the total mortality is increasing in each ten-year period.

1878 to 1887, percentage of total mortality	8.65
1888 to 1897, " " " "	9.176
1898 to 1907, " " " "	10.628

The death-rate from consumption, judged by ten-year periods, was improving slightly; the general death-rate was improving disproportionately; therefore the consumption death-rate in proportion to the total death-rate is getting a little larger all the time. Some part of this is due to the improve-

ment in infant and child mortality, allowing a larger number of people to attain the consumption age.

The under-five-years-old mortality from all causes in proportion to 1000 of population was:

1878 to 1887	10.5
1888 to 1897	9.7
1898 to 1907	4.66

If we mass tuberculosis, pneumonia, and bronchitis, and study them in the same ten-year periods, we find:

1878 to 1887	12.011 per	1000 living
1888 to 1897	14.587 "	1000 "
1898 to 1907	13.544 "	1000 "

or, percentage of total death-rate:

1878 to 1887	6.193
1888 to 1897	7.664
1898 to 1907	9.304

If we calculate the rate on bronchitis and pneumonia, added, we find:

First decade	9.627
Second decade	12.185
Third decade	12.696

While no study of pneumonia should be made without adding bronchitis to it, we find that false reporting or change in standard of reporting is not wholly responsible for the apparent increase in pneumonia. Pneumonia and consumption are increasing, bronchitis is decreasing as a returned cause of death, but the decrease is not proportioned to the increase in the other two causes.

Studying the forms other than consumption, we find that for the first decade it averaged 132.1 deaths a year, 1.10 per cent. of total mortality; for the second decade, 261.3, 1.14 per cent. of the total mortality, and for the third it averaged 449.9, or 1.68 per cent. of the total mortality.

Tuberculosis other than pulmonary is increasing in Chicago. It is causing a somewhat larger death-rate each year. Comparing its percentage of the total mortality with that of pulmonary tuberculosis, we find that it is increasing faster than the pulmonary forms. Calculating on the same basis as the proportion of other tuberculosis to pulmonary, in the first decade we get 1.24. The rate was 1.14. There was, therefore, a moderate decline in the second decade.

The same basis of calculation for the third decade, 1898 to 1907, would give 1.36. The rate 1.68 therefore shows a disproportionate increase.

I interpret this as meaning that the remedial measures against air-borne tuberculosis have been more effective than those against food-borne tuberculosis during the last decade.

I see in the consumption question two requisites of surpassing importance—and many lesser ones. The two major are early diagnosis and air purification; the lesser ones are better living, less whisky, better housing, sanatoriums, hospitals, etc.

Each patient, human or animal, is the major factor in prevention—other things are more or less theoretical: this is a certainty. If there could be tuberculin diagnosis—or any other diagnosis, if it were available—when the disease was curable in three months, there would be no consumption question. Cure would be universal and the contagious stage would not be reached.

The other major factor is air purification. Is it not suggestive that lung diseases are not following the otherwise universal downward curve? It is said that a man can live for three weeks without food, three days without water, and three minutes without air. If this be true, why is it that we spend millions on food inspection, billions on water, and next to nothing on air? Should not the order be reversed?

Occasionally it happens that consumption can be traced through a family closely associating or through a group of people other than a family closely associating. However, the tubercle bacillus has but a feeble tenure of life in a house. Such home infections are exceptional. Every year we have such an illustration in Chicago, and we use it to the full, but, outside of lodging-houses, multiple cases in the same house within two years beyond the period of viability of the tubercle bacillus under house conditions are rare according to our registration. It is true that the chronicity of the disease makes the weighing of etiological data most difficult.

This means either that the tubercle bacillus has a short tenure of life in a house or else that cleansing is efficient, or both. The literature would indicate that the first of these is the more potent factor.

To prevent house infection in Chicago we have a hospital for late cases, with a bed capacity of 325. A hospital for late cases, in that it prevents house infection, is the most useful type of hospital. We forcibly hospitalize those cases which are most dangerous to the community. Our registration system is fairly effective. When the case goes to the hospital or moves, the house is disinfected by the sheet method. A recent improvement in this method is to warm the fluid while the windows are being pasted, and then to saturate the sheets with hot formalin.

In the city of Chicago from September 1, 1907, to September 1, 1908, we disinfected 61 million cubic feet of room space. Of this, 14.8 millions was for tuberculosis; 20.6 millions was for scarlet fever; 17.8 millions was for diphtheria. In my opinion this order should be reversed.

In our tuberculosis hospital we handle sputum cups in the following manner. The night cup is an ordinary graniteware cup with a large opening. In the morning these are placed in the steam sterilizer under light pressure—eight to twelve pounds. The heat not only sterilizes, it also liquefies the mucus, so that it runs easily. The cup is easily cleaned.

For the last five years we have kept a double record on pulmonary tuberculosis. The one, alphabetic, serves to keep track of the patient. The other, by houses, arranged by streets, shows those houses which have been concerned in tuberculosis.

In my opinion, the chance contact of the larger population unit is the greater factor in the spread of consumption—breathing the vapors of the talking, coughing, mouth-breathing, or sneezing consumptive who stands next you in a crowded street-car, or hall, or working place. The larger number of contacts increases the probability of contact with a consumptive. Coupled with this is a greater average carelessness. Generally speaking, the air of the home contains more chemical impurities, more CO_2, more CO, generally SO_3, than that of a street-car or workshop. But such chemical substances determine the clinical history of an infection more than the infection itself.

Hoffman shows that the improvement in the tuberculosis situation in this country is due to improvement among women. The rate among men is not improving. Home infections are decreasing. Workshop, street-car travel in the rush hours, hall consumption, is not improving. Such illustrations as those of Indians housed, being wiped out by consumption, cannot be charged against the houses alone. Housed Indians are Indians changed in every particular. While the conditions which conduce to consumption and which determine the course of consumption are less important than the man who has the disease, from the standpoint of spread they are of great consequence. There must be protection of the air-supply commensurate with the importance of that supply in all centers of population: electrification of railroad terminals; smokeless coals on tugs and vessels—so much for migratory boilers and fire boxes; fixed boilers must be properly built and properly operated; gasoline motors must be controlled; dust occupations must be controlled; all places where men congregate must be ventilated.

In such ventilation two fetiches must be killed: First, the draft mania; and, second, the dilution standard. Bacteria, being solid, do not conform to the laws of dilution of liquids, and still less of fluids. In so far as we are able we must avoid mixing the fresh air with the foul. The expiration air, laden with tubercle bacilli, pneumococci, diphtheria bacilli, must be allowed to rise from heat and find its exit at the ceiling and be replaced with fresh air from below. This is true of bedrooms, offices, workshops, stores, halls, street-cars, and lodging-houses. The factors to be taken into account are:

1. Temperature: A warm temperature acting in the main by preventing the foul air from rising out of the breathing zone.

2. Humidity: Room air, and especially bedroom air, generally being too dry.

3. Odors from the human body.

4. Dust.

5. Most important—pathogenic bacteria.

Some of the special problems and their solutions are:

Street-cars: one hundred and twenty-five passengers in a new type car with inclosed platforms will require a change of air three times a minute if the deck sash is used to take out the bad air and put in fresh air. A change every three minutes is enough if the fresh air is put in warmed below and the foul air is taken out above. The method devised is: first, a small two-thirds horse-power motor in the ceiling driving the air out; second, intakes at the side taking the air in over heaters and delivering it in the car at 50° F. Closed deck sashes. Cleaning by blowing compressed air.

Lodging-houses: Exhaust fans at the ceiling. Intakes near the floor. The fresh air to pass through radiator coils or else through stoves or hot-air chambers.

Halls and offices: Intakes near the floor; air warmed; exits near the ceiling.

Bedrooms: Windows opened above and below.

Work-places: Equipped with dust-suction tubes.

Medidas Sanitarias en el Hogar.—(EVANS.)

La Tuberculosis es una enfermedad de la mayor importancia sanitaria.

Se transmite por medio del aire y de la leche; el uno es usado universalmente, la otra, en gran escala.

Las personas y vacas infectadas son dificiles de cuidar debido a la cronicidad de la afección y á la lenta inhabilitación.

La tuberculosis se propaga por el aire de los salones, carros, lugares de trabajos y otros sitios de reunión asi comi en los hogares.

Los hogares propagan la tuberculosis de dos modos: (*a*) Por infección. (*b*) Disminución de la vitalidad: 1. determinando la infección, y 2. determinando los resultados de la infeccion.

Discussión de: (*a*) Hogares infectados. (*b*) Malos hogares. (*c*) Casos de alojamiento.

La ventilación en sus relaciones con la propagación de las enfermedades: (*a*) Temperatura. (*b*) Humedad. (*c*) Acido Carbónico. (*d*) Otros gases nocivos. (*e*) Flora de las bacterias.

Mesures sanitaires dans les logements.—(EVANS.)

La tuberculose est une maladie d'une importance sanitaire majeure.

Elle est transmise par l'air et le lait, le premier étant d'un usage universel et l'autre d'un usage presque universel.

Il est difficile de contrôler les personnes et les vaches atteintes, en raison de la chronicité de la maladie et de sa marche prolongée.

La tuberculose transmise par l'air se contracte dans les salles, les tramways, les ateliers et autres lieux de réunion de même que dans les maisons.

Les logements propagent la tuberculose (*a*) en étant infectés; (*b*) en diminuant la vitalité—premièrement en causant l'infection et deuxièmement en causant les résultats de l'infection.

Discussion de; (*a*) logements infectés; (*b*) mauvais logements; (*c*) hôtels meublés.

Ventilation dans sa relation avec la propagation de la maladie: (*a*) température; (*b*) humidité; (*c*) dioxide de carbone; (*d*) autres gaz délétères; (*e*) flore des bactéries.

Sanitäre Massregeln in den Wohnungen.—(EVANS.)

Die Tuberkulose ist eine für den allgemeinen Gesundheits-Zustand höchst wichtige Krankheit.

Sie wird durch die Luft und durch die Milch verbreitet—die erste von Allen gebraucht, die leztere von sehr Vielen.

Die infizirten Leute und Kühe sind infolge des chronischen Verlaufes der Krankheit und des langsamen Unfähigwerdens der Kranken schwer zu pflegen.

Tuberkulös infizirte Luft befindet sich besonders in Sälen, Strassenbahnwagen, Werkstätten, und anderen Versammlungs-Orten, wie auch in Wohnungen.

Die Wohnungen verbreiten die Tuberkulose in folgender Art: (*a*) weil sie infizirt sind; (*b*) weil sie die Widerstandskraft heruntersetzen: (1) Infektion verursachend; (2) Infektionsresultate verursachend.

Diskussion über: (*a*) infizirte Wohnungen; (*b*) schlechte Wohnungen; (*c*) Herbergen.

Die Ventilation in Verbindung mit der Verbreitung der Krankheit: (*a*) Temperatur; (*b*) Feuchtigkeit; (*c*) Kohlenbioxyd; (*d*) andere schädliche Gase; (*e*) bakterielle Flora.

TOWN PLANNING IN RELATION TO THE ANTI-TUBERCULOSIS CAMPAIGN.

By Benjamin C. Marsh,

Executive Secretary of the Committee on Congestion of Population in New York City.

"Town Planning in Justice to the Working Population" is the title the writer recently gave to an article, because numerically the working class is the class most directly and vitally benefited by the normal development of the city in insuring healthy conditions of home, workshop, office, and school.

If we once ascertain and agree upon the conditions which cause and predispose to tuberculosis, we are in a position to standardize the conditions of living which must obtain, and we can then frankly recognize that no warfare against tuberculosis is effective until society demands and secures this minimum standard of light, air, and space.

Dr. Koch, in the British Congress on Tuberculosis in 1902, said: "It is the overcrowded dwellings of the poor that we have to regard as the real breeding-places of tuberculosis. It is out of them the disease always crops up anew, and it is to the abolition of these conditions that we must first and foremost direct our attention if we wish to attack the evil at its root."

Dr. George Newman, in his book on the "Health of the State," frankly admits that phthisis varies in proportion to density of population. "In the center of London, Manchester, or Birmingham phthisis mortality is higher than on the circumference of these towns. There are, of course, many causes for this, but, undoubtedly, one is density of population—that is, overcrowding."

In the valuable monograph on "Housing" by Alden and Hayward, England's standard for housing is enunciated. "The minimum for the average workingman's family is a cheap but well-built house, with four or five suitable rooms, together with a quarter-acre garden, or at least with a fair-sized courtyard. The site should be a healthy one and the house perfectly sanitary, well lighted, well ventilated, and well drained. And this accommodation must be supplied at a low rental, or it will be found beyond the means of the working classes."

Dr. George M. Kober, in his "Industrial and Personal Hygiene," says: "The natural light in workshops should be sufficient so that the eyes need

not be strained even on cloudy days. When the light is defective, the objects have to be brought too near." Dr. Kober, in his discussion, illuminates the relation of the conditions of factories to health, and he advocates strongly a higher standard of cubic air space. Every occupant of a room should have a cubic air space of 1000 feet, the amount, incidentally, provided by the Act of 1906 amending the Factory Law of New York State, but merely for certain manufactures in tenements. He admits that such an ideal standard is not always attainable in workshops, and it is believed that for particular purposes, he states, an air space of from 400 to 500 cubic feet per capita will suffice. New York State requires but 250 cubic feet per capita, even in those centers of industrial tragedy in lower Manhattan blocks in which factories cover all but 3 per cent. to 5 per cent. of the entire area.

The propriety of the consideration of this problem in this section lies in the fact that this standardizing, or even a remote approximation to the standard advocated, cannot be secured by private charity. It is fundamentally and essentially the function of government, and no preconceived objections to what is considered paternalism, socialism, or any other "isms" should be permitted to detract attention from this fact.

Governor Hughes, in his powerful address on the opening night of the Exhibit of Congestion of Population in New York, recognized that we have only begun to appreciate what the proper exercise of the police power in a State will accomplish.

Germany has taken a high standard in housing reform recently, and the various provinces are enacting legislation providing for better housing and better industrial conditions. In 1902 Herr Braun, President of the Department of Agriculture, Commerce and Manufactures in the Hessian Ministry, says that "when the committee which prepared the bill on housing had gained the conviction that the housing question in relation to the poorer classes is a land question and a credit question, there could be no doubt that the State and the towns must be asked to help in dealing with it, as apparently it was only in that way that the object sought could be gained. For it is the first condition of success that land which is necessary and suitable for the erection of houses for working people, both in town and country, shall be secured by timely and quick action. Rents in right relation with the means of the poorer classes can be insured only if sites suitable for working people's houses, and the houses on the sites, are taken for all time out of the reach of speculation. In many cases the erection of a single house, at a comparatively great distance from sites with which speculation is possible, suffices to cause a great increase in the price of neighboring sites, and this increase cannot fail to raise rents. The early purchase of land in all parts of the country must therefore be regarded as the first duty of the towns, rural communities, and societies of public utility. Encouragement to take this

course ought to be given, especially by the offer of a large measure of help by the State."

To this conviction Americans must, unquestionably, ultimately come, as we are recognizing the just functions and field of preventive effort included in the scope of governmental action.

We must admit, first, that the use of the land, or the permitted use of land, is the main factor in determining its value, modified, of course, by conditions of transportation and other local conditions.

Merely the general scheme of town planning, which, in its most comprehensive sense, originated in Germany, can be here presented. Its relation to the problem of fighting tuberculosis will be immediately apparent, and it will be admitted that only by securing conditions connoted in town planning can we adequately fight tuberculosis in cities.

In outline, town planning involves the determination by the city of the lines of its development. It means that the city sets a standard for density of population which, while recognizing the values which the inner sections have acquired through the unrestricted, and hence too intensive, use of land, grades the use to which land may be put to secure, as near as possible to the city center, a requisite standard of living and work for its population.

First, it establishes zones within which buildings of a certain height and a designated number of stories may be erected, and determines the proportion of the area that may be built upon, both in front and in rear lots, where the height of buildings is even more carefully restricted. It determines the heights of rooms in these zones, the relation between the window space and floor space, and the living conditions.

Second, it determines the general plan of development of the city, laying out the main streets and the secondary streets for a long period in advance, usually twenty to twenty-five years, with the relation of the width and material of the streets to the nature of the zones.

Third, it determines the districts within which factories may be located, and prohibits their erection in certain districts.

Fourth, it makes ample provision for parks, playgrounds, and open spaces.

Fifth, an extension plan provides for adequate means of transportation for both freight and passengers. Cheap land and cheap transportation are essential in fighting tuberculosis, and these the true extension plan seeks to insure by preventing speculation in land. These, further, cannot be secured by any private philanthropic effort. The net results of such private pseudo-philanthropic effort has been to exert often a centrepitizing force, keeping people in congested districts.

Fresh air, rest, and good food are the standards, emphasized over and over, in this tuberculosis exhibit, and are essential to the prevention of tuberculosis. It is difficult to inject fresh air into a tenement-house block with a density of

500 to the acre. New York has many blocks with a density of 1000, which cover from 65 per cent. to 75 per cent. of the site.

Rest is difficult to secure in the hubbub of tenement life and in the congestion of crowded rooms. Good food can better be secured where the rent necessary for maintaining a decent standard of privacy does not take from 25 per cent. to 35 per cent. of the earnings of the entire family—an admitted condition in scores of thousands of families of laborers in New York.

It is significant that most of the German cities which have adopted town planning also believe in municipal ownership, and the city owns and operates the street railways, gas-works, electric-light plants, and other productive enterprises. It is noticeable also that these German cities, as also the Swiss cities, which are adopting town planning, are emphasizing the municipal ownership of land, and many of them own from 10 per cent. to 50 per cent. of the land within their boundaries.

Congestion of population is not a problem of the city of half a million, any more than tuberculosis is a problem of such cities, and this Section of the International Congress on Tuberculosis would take a high and advanced ground if it put itself on record as recognizing that no effective warfare can be waged against tuberculosis without a systematic plan for the development of every city, and could adopt a standard of the number of cubic feet of air space and admit that natural light should be provided for all workers in factories, stores, and offices.

During the past four months the writer has gone with Mr. Weller through the neglected neighborhoods of Washington, which are, as he suggested, a disgrace to any city, although Washington is reputed to be a beautifully planned city, and the radial lines are indeed picturesque and pleasant in their symmetry and proportion. He has received the sorrowful admission from the head of the Administrative Bureau of Hygienic Service in Paris that Baron Hausmann's magnificent plans for the boulevards and park adornments of Paris have not kept that city from developing conditions which will require the expenditure of millions of dollars in the demolition of buildings, and the experience of the capital city of every country corroborates the judgment of these two experts that a different method of preventing tuberculosis, or the spread of tuberculosis, is essential.

In this new program of prevention town planning is the first step.

A SUGGESTED LAW TO REGULATE HOUSE VENTILATION FOR THE PREVENTION OF TUBERCULOSIS.

By Charles Denison, A.M., M.D.,
Denver, Colorado.

Millions of lives and billions of hours of existence of human beings might be saved if we only knew the true relation of the atmospheric air to this dread scourge—tuberculosis. Though approaches to the lessening of mortality rates from tuberculosis have of late years been noted through the outdoor method of treatment so universally adopted, yet the disease exists; therefore we do not know the relation it bears to the atmosphere which harbors it. If we did, we could conquer, or rather prevent, the disease. Why do we not know this relation? I believe the answer is, because we do not know the relation electricity bears to respiration and to the oxygenation of the blood; and that our physiologists may possibly have misled us in their text-books for the same reason on their part. Had they known the function of electricity in respiration and hematosis, they might not have taught us that life is supported by the oxygen absorbed from the inhaled air, in order to account for the oxygen in the carbonic acid exhaled. Had they reckoned that electricity is universally present and an essential ingredient in every natural breath of air inhaled, they would have accounted for its presence in the delicate chemical changes whereby in hematosis the carbon is thrown off and the oxygen in the blood-stream raised to a purified state, or perhaps to its allotropic form—ozone. The dilution of the oxygen in the air by approximately 79 per cent. of nitrogen can be considered as a provision of nature for controlling an element too powerful in its uncombined state, and the instability of the oxygen molecule is probably the best proof we have of its close relation with electricity. It is very desirable to learn how it is that this force governs, as it seems to do, this changeableness of oxygen.* We must know

* The carbon being so much finer in the atomic scale compared with oxygen, it might perhaps be warranted by the facts to consider the process as one of electricity infusion and carbonic-acid gas transfusion through the pulmonary membrane, the oxygen of the air being the *conveyer* and the oxygen of the blood the *receiver* of the electricity. This is mentioned as only a suggested hypothesis by the author, who knows he has no right, from his own limited knowledge of physics, to make any authoritative statement whatever as to what electrically occurs in hematosis. However, against the prevailing belief in the absorption of so much oxygen in respiration, in addition to that taken in food and drink, there is perhaps ground for an explanation of the process of hematosis which includes electricity as an essential agent in the process.

the relation of electricity to this process of respiration before we can fully understand the relation of atmospheric air to tuberculosis.

So, likewise, in the study of the subject of ventilation, we come against the same sort of difficulty. We do not know how much of a departure from outdoor conditions is compatible with perfect health, and, for the same reason, namely, our lack of knowledge of the vitalizing effect there is in the electricity content of the air. There is a principle in law, handed down from old Roman times, "He knows not the law, who knows not the reason of the law." We may not be permitted now to know the full reason of a law of ventilation which will be preventive of tuberculosis to an extent which will render this an insignificant disease compared with other now lesser sources of mortality. Yet we can work out the proofs of the need of such a law through the study of the separate attributes of the atmospheric air, with special reference to atmospheric electricity. Such a study will help to show the universality of an electric content of the air we breathe; the necessity of animal life depending upon it; and the degeneration productive of tuberculosis, or the susceptibility thereto, which comes with defective or deficient ventilation.

The former belief in the burning of the blood's carbon by the oxygen, through the lungs, falls short of an explanation of the needs of ventilation, because it leaves out a factor we know to be constantly present wherever the air penetrates—that is, electricity. The potency of this element is such that it may not be ignored wherever it may be, and that potency, in the ordinary conditions of life, is ever for good. It is therefore unquestionably operative in the process of breathing. This electricity is in and from the sunlight; the argument is therefore conclusive that the presence and potency of the sunlight, and the free and abundant supply of fresh air, with its adequate and ample electricity, is the essential environment for both the prevention and cure of tuberculosis. Electricity, sunlight, and ventilation are three cardinal principles in the prevention of this dread scourge, and should be in demand in all our curative measures.

The "starvation of air" which will account for the existence of this disease must receive a different interpretation from that of the "danger-point" due to carbonic acid saturation, which has up to now been the generally accepted explanation of the toxic results of deficient ventilation. We can live through such toxic states, supported by a vitalized supply of oxygen within our bodies, without which we would die at once. Dr. Angus Smith could comfortably, though temporarily, exist in his lead chamber till after the flame of his candle had gone out from lack of oxygen with which to burn.

Physiologists admit that there is no adequate explanation, in the carbonic acid exhaled in confined space, of the remarkably good effect of outdoor life in the treatment of tuberculosis, and that there must be something,

radio-activity or some electric attribute in the air, which would satisfy the need of an explanation.

Sir Benjamin Richardson revived his drooping doves and rabbits with his current of static electricity introduced into his hermetically sealed jars, where these birds or animals were allowed to remain until they had supposedly used up all the oxygen, or were dying from the toxic effects of their own carbonic acid exhaled. Through simply electric stimulation the "fatal air" in his jars "was again made capable of supporting life," from which he concluded that the oxygen is "devitalized" during respiration, and the electric spark has the faculty of "revitalizing" it.

In 1895 Drs. J. S. Billings, S. Weir Mitchell, and D. H. Bergey, under the Hodgkins Fund, made a report to the Smithsonian Institution on "The Composition of Expired Air and its Effects upon Animal Life." Among the many experiments tried, the "Hammond," "The Brown Séquard," and the "Richardson," in which the amount of oxygen remaining in the confined space in which animals had died was determined, there were quite a number in which there was enough oxygen left for the animals to have lived on had it been electrified like the natural air outside the closed jars. They even tried the Richardson experiment and showed that it was not always the deprivation of oxygen in confined space that killed the animals therein, nor yet always the excess of carbonic acid; but, like the play of Hamlet with Hamlet left out, they did not complete Sir Benjamin Richardson's experiment in that they did not test the reviving power of electricity upon the dying animals in confined space. It is greatly to be regretted that this splendidly sustained opportunity to settle this important issue was not utilized.

Through the apparent disinclination of this commission to go any further than the consideration of the life-sustaining power of the oxygen of the air and the death-producing qualities of the exhaled carbonic acid, we are left to coincide with the closing sentence especially of the following quotation from their report: "In all cases tubercular diseases of the lungs and pneumonia are the diseases which are most prevalent among persons living and working in unventilated rooms. . . . It is, however, by no means demonstrated, as yet, that the only deleterious effect which the air of crowded barracks and tenement-house rooms, or of foul courts or narrow streets, exerts upon the persons who breathe it, is due to the greater number of pathogenic microörganisms in such localities. It is quite possible that such impure atmospheres may affect the vitality and the bactericidal powers of the cells and fluids of the upper air-passages with which they come in contact, and may thus predispose to infections, the potential causes of which are almost everywhere present, and especially in the upper air-passages and in the alimentary canal of even the healthiest persons; but of this we have, as yet, no scientific evidence. *It is very desirable that researches should be made on this point.*"

However much we may fall short of a full understanding of the etiology of tuberculosis, we all agree that it is a disease of environment, whether causative or curative. In either case, whether for cause or cure, the physical conditions are preëxistent to the life of the germ, and should here absorb our attention. The advent of this germ cannot warrant any precedence in the etiology of tuberculosis over the deficiencies of these physical attributes of the air. The well-known facts of our civilization prove these deficiencies to exist in our badly ventilated abodes. Confirmation of the needs of more and sun-treated air comes through the almost universal adoption, all over the world, of the outdoor treatment for tuberculosis, which some of us have been advocating for over thirty years. The solution of this tuberculosis problem, then, rests upon another well-known fact—that tuberculosis is essentially a house disease. This statement rests firmly on the multitudinous evidence which may be brought out in favor of the very close relation of tuberculosis to indoor life.

We have time only to briefly mention that aboriginal races are practically free from tuberculosis in their native outdoor life, but become, as did the American Indian, most susceptible to the disease when they adopt the indoor life of their civilized conquerors. Even the Esquimos, living in the Arctic regions, where tuberculosis would otherwise be an impossibility, may have the disease because of the close, unventilated, and unlighted huts in which they stay.

Dr. Chalmers, of Glasgow, in showing the relation of tuberculosis to poverty, has given us statistics for his city of the tubercular mortality in families represented by children attending school; *i. e.*, according to the number of persons living in a room. The mortality rate in homes where there was one to the room was 3.4 per cent. from tuberculosis; where there were two to a room, 5.9 per cent.; and where there were three to a room, 8.3 per cent. No better evidence of the relation of space per capita to the increasing mortality from tuberculosis could be asked for, though these statistics were obtained for another object—the poverty of purse rather than the poverty of room space.

Animals, as well as man, when transferred from a natural and open existence to a life of captivity, with its usual confined space, show the same acquired susceptibility to this disease. I once had an opportunity to study the effect of the environment, the inbreeding, the confinement, and other conditions causing tuberculosis on a herd of some forty short-horn cattle imported from England to a farm near Denver. This was about thirty years ago; within ten years thereafter the whole herd was decimated by this disease. How much continual inbreeding and infection added to the effect of the close confinement of these cattle may be left undetermined. I inspected the remnant of seven head, all thoroughly tubercular. The other males had been sold off

wherever found to be diseased, to be mixed in with native stock in northwestern Colorado. Those cattle sold lived almost entirely in the open, and not only did they themselves seem to lose the evidences of the disease, as I understand, but their progeny, born of the native stock, turned out to be the best beef cattle in the State, three-year-olds, often selling for four-year-olds, as estimated in an eastern market.

Tuberculosis is essentially a house disease. Now, why and how is it so?

The answer to that question ought to settle the question of prevention. Admitting that it is a house disease, its spread is for one of two reasons: first, because there is greater opportunity for infection in houses; second, because of the diminished space, with or without limited light, allotted to the residents. Now, we find the first theory untenable, for the germs have had "no standing in court," and are not in evidence until after susceptibility due to atmospheric conditions exists. The space explanation is, however, reasonable, and ought to be clearly understood. Our greatest difficulty is our ignorance of the required sufficiency of space per capita in a sleeping- or living-room, to equal normal, or rather preventable, conditions even for the average individual. We individually think we know what ought to be the legal minimum limit and what ought to be the generally acknowledged preventable or healthy limit per capita space, renewed once per hour—as did the renowned writer on public hygiene, Dr. Parkes. However, I may say that the number so gifted with advanced knowledge on this most important subject is not great, and the masses are practically without the insight which would enable them to understand the principle of hygienic ventilation. In this unknowing class I include the legislative bodies, who ought, above all others, to be fully posted so as to act in this matter. What is needed is general and thorough knowledge upon this important theme of ventilation, up to which the study of these physical attributes of the air in relation to tuberculosis has led us.

Then what is further needed is such a pronounced and authoritative statement of rules or laws of house ventilation that the same will be broadly accepted as a basis of legislation for home and building construction.

The great problem before us is to apply, through building permits, supervision over renewable air space in residences, workshops, and public buildings, similar to that which the building inspector now has over plumbing to prevent sewer-gas from entering a room, or by fire-escapes, to prevent the destruction of life by a burning building. The State, by its police power, protects the community's life and health against individual greed, ignorance, or indifference.

The law should provide not only for a possible healthy renewable air space by night, but by day, if possible, a naturally electrified atmosphere; *i. e.*, warmed and lighted by the sun's rays. Having determined a minimum

health limit for renewable air space, the specification of the size and position of windows toward open and not toward shut-in areas will complete a provision which should do much for the limitation of tuberculosis.

A rule of house ventilation, which would be a guide for building inspectors, and a basis of police regulations in the interest of public health, must necessarily be limited to the natural method as distinguished from artificial or forced method: that is, if, as is necessary, the cost of construction and expense of heating are to be considered. With ventilation artificially provided, renewability of air would practically be all that would be required, provided the once breathed air could be drawn off so as not to be used again till refreshed—*i. e.*, revivified. In this case the problem of space per capita would not amount to much, as only a relatively small quantity of air would be needed, depending upon the size and activity of the breather's lungs.

But with the natural method, the air in a room must be diluted with fresh air and kept down to a healthy standard, so far as its bacterial content, its saturation by carbonic acid, or its devitalization through respiration or other use is concerned.

Here we must have a right estimation of both the cubic space per person and the continuous renewability features of the ventilation problem.

In making a rule of ventilation the maximum limit allowance does not matter. The air cannot be too pure for anybody. The minimum limit for health, governed by a danger-point yet to be determined, is what is needed. This must necessarily be a compromise between healthfulness and expense, because as air in inclosed space is not as pure as that outdoors, so there is none so free of expense. The cost of construction and of heating in cold weather must be constantly considered, and as we are dealing with tuberculosis, a disease of the poor and ignorant class, we are still more compelled to compromise the more expensive space to the advantage of the less expensive renewability feature of the needed law.

It has been the author's study to work out this problem to as near a healthful standard or rule as possible, in justice to and in consideration of the average poverty of the poorer half of mankind.

Parkes worked out the space per capita problem on the generally accepted basis of sufficient cubic measure of air in a room to keep down the carbonic acid to two parts in 10,000 on excess of the four parts already in the atmosphere, for one person; making six parts in 10,000 allowable carbonic acid impurity. This led to his rule, 3000 cubic feet per capita, renewed once per hour.

Du Charmant worked out the renewal problem under ordinary air movement, and allowing for the usual variation between indoor and outdoor conditions. His determination led up to an inlet and outlet opening equivalent to about a third of a foot in capacity, in order to give the required re-

freshing of the air in a room used by one person, and at the same time to keep down the percentage of carbonic acid below the average standard, supposedly the danger limit due to respiration. On a plan of making up through the facility of air renewal for decreasing space per capita, I have arrived at a one-third compromise between these two space and renewal determinations, *i. e.*, one-third less than Parkes' and one-third increased renewal above Du Charmant's rule for house ventilation, and propose the following:

"Rule of Minimum Ventilation.—*Two thousand cubic feet air space per person, renewed once per hour; the hourly refreshing of a room's atmosphere through an external opening one foot square being the method of renewal; a standard below which living-, sleeping-, and working-rooms should not be allowed to be built.*"

The utility of having the rule vary toward renewal, at the expense of the per capita space provision, will be apparent when it is considered that the renewal approaches the equivalent of outdoor conditions according to its frequency, and the smaller the space and larger the opening, the quicker will be the refreshing of a room's atmosphere. It is intended that the rule be adjustable to more persons in a room as well as to rooms of different capacities; for instance, double the renewability should be provided for either two persons to the room or for rooms one-half reduced in size, the purpose of the rule being to furnish the equivalent of 2000 cubic feet of fresh air per person, whatever the size of the room or frequency of renewal.

So, too, as the spirit as well as the letter of the law ought to be regarded, ample allowance ought to be provided for having nearly the equivalent of outdoor conditions when, as often happens in the summer-time, there is no wind and no difference in temperature between indoors and outdoors to favor diffusion of atmosphere. Then not only smaller sized rooms, but absence of open areas for window facings and insufficiency of sun exposure should be regarded in obeying this ventilation rule; for certainly narrow inclosed areas and very thick walls or those facing the north, through exclusion of sunlight and air friction, annul the effect of the rule and require compensation through equivalent increased renewal provisions.

Here is a rule which the writer submits ought to become a law, enforced through the police provisions of the State and municipality; to stand as an educator of the people in favor of the hygienic prevention of tuberculosis, and to satisfy the demand warranted by the house relation of the disease, for the control of tuberculosis through a ventilation law.

In conclusion it is fitting for us to consider the way to inaugurate a law of ventilation.

The question is not only *how* will you determine its provision, but *how* will you bring about its adoption?

I have thought of settling the essential features of the law by obtaining the consensus of the judgment of scientists, health commissioners, climatologists, and interested physicians over the whole United States, as to what should be the minimum per capita space on a given renewal basis, to be named in the rule. But such a consensus would only be a compromise. If the consensus result were a departure from accuracy, it would be because the biased or mistaken judgment of certain observers had so changed it. While a compromise, such as this consensus conclusion, would be preferable to no rule at all.

Then, as to the second question, how will the law be promulgated and put in force?

Is not the adoption and promulgation of a law as much the function of this International Congress, and especially of this Section, devoted to State and Municipal Control of Tuberculosis, as of any association of men in existence? We meet and tabulate the histories of personal and associated work along the line of sanitation and hygiene, but the records of our meetings are a collection of various and often opposing judgments, assembled together only preparatory to some future determination of definite action. It is time that we accomplished something for prevention. We may not be able to enact a law of ventilation, but we can adopt one for recommendation, to be enacted by all legislative bodies, which will have to do with its enforcement. Such action would stamp this body as superior to all like associations that have preceded it.

La Limitacion de la Tuberculosis por Medio de la Ventilación de las Casas. —(Denison.)

Siendo la tuberculosis practicamente una enfermedad del hogar, debido à la insuficiencia del cambio del aire y de la luz del Sol, qué ley de ventilación puede darse y ser cumplida para la prevención de ésta?

En una explicación ligera, y admitiendo ésta relación del hogar con la tuberculosis, una regla de la ventilación, lo cual es el objeto de esta comunicación, se presenta entre la regla del espacio de 3,000 pies cúbicos por una persona, y la regla del renuevo de Du Charmant que es aproximadamente dos terceras partes de un pié cuadrado de entrada y de salida, el renuevo del aire hecho cada hora. Esto como la base de una ley apropiada constituye una regla del mínimo de ventilación.

El objeto es de determinar un límite peligroso a la salud, que bajo este límite cuartos de habitacion, de dormir y de talleres no deben permitirse. El equivalente de las dos determinaciones mencionadas se encuentra en la regla siguiente, un efecto suficiente de los rayos solares sobre el aire son conciderados como suficientes en la ventilación de las casás, y una educación

y conocimiento de los peligros de la deficiente ventilación ayudará al mantenimiento y obediencia de la ley.

La regla de la ventilación mínima; 2,000 pies cúbicos de espacio de aire por cada persona renovado cada hora; el completo renovamiento del aire atmosférico cada hora depende del metodo como el aire es renovado.

Una regularización de ésta regla debera hacerse de acuerdo con el tamaño del cuarto, y el número de personas que habitan el cuarto, lo mismo que las condiciones de los rayos solares, a fín de tener provisión de una ventilación suficiente bajo lás diferentes circunstancias.

Limitation de la Tuberculose par la Ventilation des Maisons.—(DENISON.)

La tuberculose étant pratiquement une maladie de maison, due à ce que l'air n'est pas suffisamment renouvelé et que la lumière du soleil ne penêtre pas suffisamment, quelle loi de ventilation peut être projetée et appliquée comme préventif?

Pour expliquer brèvement, et présupposant la connaissance du fait de la relation qui existe entre la ventilation de la maison et la tuberculose, on peut formuler une règle de ventilation qui est l'objet de cette étude, règle qui sera un juste milieu entre la règle d'espace de Parkes—3,000 pieds cubiques d'espace pour une personne—et la règle de renouvellement de Du Charmant—une ouverture d'à peu près deux tiers de pied carré pour l'entrée et pour la sortie de l'air pour le renouvellement d'heure en heure de l'air. Ceci, comme base d'une loi désirée, constitue une règle du minimum de ventilation.

Le but est de fixer une limite où la santé est en danger, limite au-dessous de laquelle on ne devrait pas permettre de bâtir les salons, les chambres à coucher et les ateliers. L'équivalent des deux conditions cidessus se trouve dans la règle suivante, pourvu que l'on considère l'esprit de la loi et que le soleil ait un effet suffisant sur l'air pour assurer amplement des possibilités de ventilation dans toutes les maisons bâties à l'avenir; et pourvu que l'éducation et une connaissance du danger de ventilation insuffisante aident à maintenir obéissance à la loi.

La règle de ventilation minimum: 2,000 pieds cubiques d'espace d'air par personne renouvelés une fois par heure; le changement complet chaque heure de l'atmosphère d'une chambre étant la méthode employée pour renouveler l'air.

On peut modifier cette règle suivant les dimensions variées des chambres, et le nombre des occupants, aussi bien que suivant les diverses expositions du soleil, de manière à assurer ample ventilation dans tous les cas.

Einschränkung der Tuberkulose durch Haus-Ventilation.—(Denison.)

Da die Tuberkulose eigentlich eine Hauskrankheit ist, abhängig von mangelhafter Erneuerung von Luft und Licht, welches Ventilierungsgesetz für ihre Verhütung könnte man planen und durchsetzen?

Die Tatsache dieser Hausbeziehung zur Tuberkulose annehmend, habe ich in diesem Artikel eine Regel der Ventilation ausgearbeitet, welche ein vermittelnder Vergleich sein soll zwischen dem Parke'schen Raumgesetze—3000 Kubikfuss Zimmerraum für eine Person—und dem Du Charmant'schen Erneuerungsgesetze—ungefähr zwei Drittel eines Quadratfusses Einlass- und Auslass-Öffnung für stündliche Erneuerung. Dieses, als die Basis für ein wünschenswertes Gesetz, wird eine Regel der Minimalventilierung gemacht.

Der Zweck ist, die Gefahrsgrenze der Gesundheit zu bestimmen, unter welcher Wohnräume, Schlafräume, und Arbeitsräume nicht gebaut werden sollten. Die Gleichwertigkeit der beiden obigen Bestimmungen wird in der folgenden Regel gefunden, vorausgesetzt, dass der Geist des Gesetzes und die Hinlänglichkeit der Sonnenwirkung auf die Luft in gehöriger Weise berücksichtigt und vorgesehen wird, um genügende Möglichkeiten der Ventilierung in allen künftigen Bauten zu sichern; und Erziehung und eine Kenntnis der Gefahr von mangelhafter Ventilation die Erfüllung des Gesetzes unterstützen.

Das Gesetz der minimalen Ventilation: 2000 Kubikfuss Luftraum pro Person einmal per Stunde erneuert; die vollständige stündliche Erneuerung der Zimmeratmosphäre ist die Methode der Erneuerung.

Eine Anpassung dieses Gesetzes ist beabsichtigt je nach den verschiedenen Grössen der Zimmer und der Anzahl der darin Wohnenden, sowohl als auch nach der schwankenden Aussetzung der Sonne, um unter allen Umständen genügende Vorbereitung für volle Ventilation bereit zu haben.

DISCUSSION.

Dr. Hurty (Indianapolis) said that he had gone once on a tour of inspection in the country and visited many farm-houses, where he saw whole families living in crowded and unventilated quarters. He asked every one of them if they knew what those conditions meant. All answered in the negative. Education is not the only factor to be taken into consideration: laws should be enacted which will compel the builder to construct houses with the proper amount of air space throughout the dwellings.

Dr. Williams (London) expressed much pleasure in agreeing with Dr. Denison's paper. He stated that ventilation was really the vital thing. However, he does not agree that the trouble lies in the want of electricity in the air, as he does not understand how it increases the oxygen of the air. He also stated that the increase of organic matter had much more to do in the vitiation of the air, against which a good system of purification should be created.

THE PRESENT STATUS OF RAILWAY SANITATION IN THE UNITED STATES.

By H. M. Bracken,
Secretary Minnesota State Board of Health, St. Paul.

It is difficult to define the status of a thing that does not exist. It can safely be said that there is no such thing as railway sanitation in the United States. Sanitary problems relating to railways are, in general, under no special supervision. Judging from my personal knowledge, it would seem possible for a railway company to pay a sanitarian a good salary out of the savings that would result from the advice given by such an appointee relative to the selection for purchase, or non-purchase, of the many so-called sanitary devices and agents thrust upon the market for use in railway cars, etc.

A few years ago the Pullman Company appointed a "Superintendent of Sanitation," and to judge from appearances this company is profiting through the advice of this official. One of the large railway systems has a "consulting sanitarian," but his duties are not well defined and his advice does not seem to be in great demand. In one instance the chief surgeon of a railway system advised that the employment of a sanitarian would be of little if any value to the road which he represented. This same chief surgeon promised to take a deep interest in the sanitary problems of the road, but judging from the progress, or lack of progress, of this road in dealing with sanitary matters during the past few years this chief surgeon must have forgotten his promise. Some railway surgeons do take an interest in advising the roads which they represent to the best of their ability, but, being surgeons rather than sanitarians, their advice is limited to emergencies thrust upon them rather than extended to general problems, which, if properly developed, would not only greatly enhance the comfort and well-being of the traveling public, but would also be of financial benefit to the companies, both directly and indirectly.

Certain railway systems have placed their sanitary problems under the supervision, to some extent at least, of those engaged in the "relief work" of their employees. Quite generally railway sanitary problems are under the control of the "superintendent of motive power" or the "mechanical superintendent."

A few years ago regulations governing the transportation of the dead were

formulated, through the joint action of the American Baggage Agents' Association, the National Funeral Directors' Association, and the Conference of State and Provincial Boards of Health. An effort was made in 1906 by the above conference to take up the question of formulating regulations governing the transportation of the living, and the chairman of the committee appointed for this purpose corresponded with certain railway organizations. Nothing resulted, however, from this effort, the railway representatives appearing to be quite indifferent.

There are interstate regulations relative to the shipping of hogs, cattle, and commercial products, but when the question of national legislation for the protection of human beings is raised, the bugaboo of States rights is brought forward and the proposed legislative measure is promptly killed. In a recent article Dr. C. Harrington* drew attention to the remarkable difference which may exist under conditions fundamentally alike, as relating to States rights, citing as illustrations the fact that while States rights prevented legislation for national quarantine covering a period of about a century, no strong objections were made to the passage of national laws relating to pure food, packing-house products, etc. It would seem, therefore, that while the infringement of States rights is a serious problem when sanitary questions are involved, the question of States rights is easily thrust aside when it interferes with interstate commercial problems—another illustration of the greater value of the dollar than of human life.

There ought to be national regulations bearing upon railway sanitation, but in all probability the formulation of such will be impossible for some time to come. The value of human life does not appeal to the legislator as does the value of commercial products.

Various States have formulated regulations governing railway sanitation, but these are often either tardily or weakly enforced. Among the States having regulations are Kentucky, Georgia, Indiana, Iowa, Kansas, Louisiana, Maryland, Minnesota, Mississippi, Missouri, Montana, New Jersey, North Carolina, North Dakota, Oregon, Rhode Island, Tennessee, Texas, Vermont, Virginia, Washington, and West Virginia (twenty-two). Those admittedly having no regulations are Alabama, Arkansas, California, Colorado, Connecticut, Florida, Illinois, Maine, Massachusetts, Michigan, Nebraska, Nevada, Pennsylvania, New Hampshire, New York, Oklahoma, Ohio, South Carolina, South Dakota (nineteen). Concerning the rest of the States and territories I have not been able to secure any information bearing upon this subject. In the laws and regulations governing these questions in the various States there is the greatest difference.

It may not be quite fair to say that New York and Massachusetts have no such laws or regulations, for in both States there is to some extent pro-

* Oration on State Medicine before the American Medical Association, 1908.

tection of watersheds from pollution by railways. In certain States, such as Ohio, Rhode Island, Vermont, Maryland, Virginia, West Virginia, and Tennessee, the regulations relate only to spitting.

The Tennessee law reads as follows:

"Be it further enacted, That any person or persons who may be proprietors or managers, or any corporation which may be the owner of steam railway passenger coaches operated in this State, shall provide cuspidors or spittoons within said coaches in sufficient number and shall keep the same disinfected and in a sanitary condition to meet the approval of the State Board of Health.

"Be it further enacted, That it shall be unlawful for any one to spit or expectorate upon a wall, floor, or furniture of any steam railway passenger coach, and any person or persons who shall wilfully or carelessly spit or expectorate on said floor, wall or furniture shall be guilty of a misdemeanor and fined not less than two (2) dollars nor more than five (5) dollars for each offense." (From Chap. 594, Acts of 1907.)

The Maryland law reads as follows:

"It shall be unlawful for any person to expectorate or spit on the floors, sides, seats, or platforms of any railroad or railway passenger cars in this State, under a penalty of three (3) dollars and costs, one-half of said fine to go to the informer or party arresting and furnishing the evidence upon which the offender is convicted. And for the purposes of this Section all railroad or railway conductors and brakemen running on passenger trains are empowered to arrest such offenders and take them before the nearest justice of the peace at the next convenient stop of said train within this State for trial, and such justices are given jurisdiction in the case. In default of payment of fine and costs, any party so convicted shall be sentenced to jail for not more than five (5) days; provided, however, that smoking cars in which cuspidors are not placed by the company operating the same shall be exempt from the operation of this section." (Section 238, Article 27, Code of Public Health Laws; passed 1902.)

The Vermont law is as follows:

"If a person shall spit upon the floor or platform, or upon the interior furnishings or furniture, except cuspidors, of any steam railroad, passenger car or street railway car, in operation upon any railroad in this State, or upon the floor, furnishings, registers or radiators, of any railroad passenger station or public waiting-room in this State, he shall be fined not more than ten (10) dollars, to be recovered in a prosecution before any justice of the peace in the county where the offense is committed, provided, however, that no prosecution shall be commenced for such offense unless notice of the provisions of this act shall be posted in a conspicuous place in the cars, station and waiting-rooms of said corporations and suitable cuspidors furnished, excepting in street railway cars." (No. 70, Acts of 1902.)

The laws of West Virginia are as follows:

"That it is hereby declared dangerous to the public health and unlawful, for any person to spit or expectorate or deposit any sputum upon the floor, stairway or upon any part of any theatre, public hall or building where the public congregate or upon the floor of any part of any railroad car or street car or steamboat or any other public conveyance, etc.

"It is further ordered that every railroad or steamboat company, shall provide in each smoking compartment or smoking car as many cuspidors or spittoons as may be necessary for the convenience of passengers. And the managers of every railroad or steamboat operating in the State shall cause all cuspidors or spittoons used therein to be cleansed and disinfected by steam or other approved disinfectant, at least once each day and shall keep not less than one-half ($\frac{1}{2}$) pint of a 5 per cent. solution of carbolic acid in each cuspidor or spittoon.

"No person shall sweep or dust any floor or part of any railroad car, street car or steamboat or other public conveyance while being occupied or used by the public, unless the same has been thoroughly sprinkled with approved disinfectant.

"Within sixty (60) days after the passage of this order, the owners or managers of steamboats, steam and electric railways operated in whole or in part in the State shall post a printed copy of this order in a conspicuous place in each cabin, passenger and baggage car owned or operated by steamboat or railway companies.

"Any person or persons having charge of such railway trains, passenger coach or steamboat, or public or private conveyance, or any other person, who shall refuse to obey such rules and regulations, shall be guilty of a misdemeanor.

"It shall be the duty of the local boards of health, health authorities and health officials, officers of State institutions, police officers, sheriffs, constables and all other officers and employees of the State, or any county, city or village thereof, to enforce the provisions of this order." (An order of the State Board of Health of West Virginia, May 1st, 1908.)

Dr. Foster, of California, under date of June 30, 1908, writes: "Every State should have laws regulating sanitary conditions on railroads with an officer vested with authority to see that such regulations are enforced. . . . . There should be a uniformity of State laws, or, better still, a national law bearing upon this subject."

Dr. Dixon, of Pennsylvania, under date of June 25, 1908, says: "Our department has preferred to exercise its authority in this matter directly through the heads of the great railroad companies, leaving details in their hands. We have conferred authority on the medical officers of railroads to enforce all regulations of the Board regarding general sanitation within the jurisdiction of the several companies. For this purpose we have appointed, for the Pennsylvania railroad, twenty-one of the Medical Officers of the Voluntary Relief Department; for the Philadelphia & Reading railroad, eleven;

and for the Baltimore & Ohio railroad, eighty-eight. The heads of the several departments are given especial commissions, and may be said to represent the authority of this department on those roads and the territories over which they have jurisdiction. Each company makes its own regulations, the only restriction being that they shall be in accordance with the general regulations of the State Health Department."

Dr. Adcock, of Missouri, under date of June 25, 1908, says: "Our Board, at a meeting in March last, promulgated rules and regulations governing the sanitary conditions of railroads and railway stations throughout the State which have been very kindly accepted by the roads. There being no provision by which our Board can appoint some one to look after this matter, the enforcement of the regulations is left to the employees of the railroads. The railroads are not averse to having such instructions from the State Board, as it is to their advantage to have clean cars and day coaches, and in their efforts to keep things clean and sanitary they are glad to have the Board's support."

Dr. Porter, of Florida, under date of June 29, 1908, says: "During the last session of our legislature a bill was prepared to cover railroad and steamship sanitation, but unfortunately the lower house turned the measure down, although the Senate had passed the bill without a dissenting voice."

Minnesota is in much the same position as Missouri and Florida, for it has a set of regulations which it cannot enforce, because during the legislative session the Senate failed to pass a bill covering railway sanitation—regulations which were carefully formulated in conference with representatives of all the railways operating in Minnesota, and therefore presumably practicable. These regulations, which can at present be used only for educational purposes, are as follows:

"No person shall spit upon the floor, furnishings or equipment of any railway coach, chair car, parlor car, sleeping or dining car, depot or depot platform.

"The State Board of Health will furnish, at the expense of the State, upon request, and each railway company operating in the State is hereby required to post and display in each passenger coach, a placard in form as follows:

"*Spitting or Throwing of Refuse on the Floor, Furnishings or Vestibules of this Car is Prohibited by Law.*

"The following notice must be posted in all station waiting-rooms located in Minnesota:

"*Spitting or Throwing of Refuse on the Floor or Furnishings of This Room is Prohibited by Law.*

"1. The notices posted in station waiting-rooms located in Minnesota

must be signed by the Secretary and Executive Officer of the State Board of Health.

"2. The owners of all general waiting-rooms and smoking-rooms shall provide one or more spittoons for each of such rooms. All spittoons must be placed upon the floor. Water must be kept in all spittoons except those used in cars.

"3. Spittoons must be placed in the offices used by railway officials and employees.

"4. Should a passenger be found spitting upon the floor, his or her attention should be drawn to the regulation posted in the car prohibiting spitting. Should it be impossible for the passenger to refrain from spitting because of disease or other infirmity, the porter in charge of the car shall provide such passenger with a spittoon. Each sleeping car operated in Minnesota shall be furnished with one spittoon for each section or compartment. Each smoking compartment in day coaches, chair, parlor, and sleeping cars, must be furnished with at least two spittoons. Each smoking car shall be provided with at least six spittoons. Each combination smoking car shall be provided with at least four spittoons.

"5. Spittoons, as directed in the preceding rules, must conform to the following requirements: They must be of such form as to meet with the approval of the State Board of Health, and so constructed as to conceal their contents from view so far as possible, and permit of their being easily and quickly emptied and cleaned. They must be of such shape that it is easy to spit into them.

"6. Spittoons must be cleaned at least once each day.

"7. When a water-borne disease has developed in epidemic form in a municipality, water from such a place for car tanks must not be used without the approval of the State Board of Health. The drinking-water and ice supply used in day coaches, chair, parlor, dining and sleeping cars must contain no ingredient deleterious to health. In new passenger cars all receptacles for drinking-water must be so constructed that they cannot be opened by any one except those having charge of same.

"Nothing but ice and water shall be placed in the receptacles used for the storage of drinking-water (on cars).

"8. All day coaches must be thoroughly cleaned once each day or at the end of a trip. In no case shall such cleaning be less frequently performed than on every third day. There shall be no dry sweeping or dusting of cars while in service.

"The thorough cleaning of day coaches must be carried out as follows: The floor shall be cleaned with soap and water, to which may be added any other cleansing agent. After being cleaned, the floor shall be mopped with a one per cent. solution of the official formaldehyde solution described by the U. S. Pharmacopœia of 1900, or some other disinfectant approved by the State Board of Health. The walls of the closets shall be cleaned by sweeping and wiping with a disinfecting solution. The hoppers and urinals shall be thoroughly cleaned and disinfected. The floors of the closets shall be thoroughly cleaned. After the above preliminary cleaning, the hoppers and urinals and closet floors shall be mopped with a 1 to 2 per cent. solution of said formaldehyde solution, or some other disinfectant approved by said State Board of Health.

"The receptacles for drinking-water shall be emptied and thoroughly cleaned as often as necessary.

"9. A day coach in which a person affected with smallpox, scarlet fever or diphtheria, has been carried must be closed as soon as the passengers have left the car, and remain closed and unoccupied until the coach has been thoroughly disinfected with formaldehyde gas, using not less than 10 ounces of the said formaldehyde solution for each 1000 cubic feet of space to be disinfected. If the potassium permanganate method is used, then there must be 20 ounces of the said formaldehyde solution, and 16 ounces of potassium permanganate, used for each 1000 cubic feet of space to be disinfected. After a thorough disinfection of the car, it shall be cleaned as directed under Regulation 8."

The cleaning of Pullman or other sleeping cars at terminals is as follows:

"1. The windows, doors and ventilators shall be opened, the upper berths let down, the seat bottoms and backs lifted out, the mattresses, blankets, pillows, curtains, etc., loosely arranged for airing. If the weather permits, the removable articles mentioned above shall be taken out of the car, dusted and aired in the open, and exposed to sunlight for a time. The rest of the cleaning of the car shall be carried out as directed for day coaches under regulation 8.

"2. Sleeping cars shall be fumigated at least once every two months. Fumigation shall be carried out before the carpets have been removed or the cleaning of the car begun. Preparation for fumigation shall be as follows: Close all outside doors, windows, deck sash and ventilators. Arrange one or more windows on each side of the car so that they can be opened from the outside to avoid the necessity of entering the car while the formaldehyde fumes are strong. Open all interior doors. Pull the seats forward and loosen the pillows in the pillow boxes. Open the upper berths and lay the head-boards across the seats so that one corner will rest upon the seat arm. Lay the lower mattresses on the head-boards with the middle arched upwards, the ends being pushed together. Raise the curtain poles and hang the curtains near the end by a single hook. Throw the blankets over the curtain poles, making as few folds or thicknesses of the blanket as possible. Arch the upper mattresses in the upper berths.

"Fumigation with formaldehyde solution and potassium permanganate shall be carried out along the lines approved by the State Board of Health. After the car has been fumigated, it must remain closed for a period of at least three hours, after which time the doors and windows shall be opened as soon as possible. On rainy or damp days the car need not be kept closed after fumigation for a longer period than one hour.

"3. Porters shall not sleep in sleeping cars in Minnesota unless a special compartment in the sleeper and special bedding are provided for their use by the companies operating the same.

"4. Porters shall not use the sleeping car bedding provided for passengers."

The above regulations relating to sleeping cars follow very closely in form the regulations formulated by the Pullman Company for the guidance of its own employees.

"Parlor, buffet and dining cars shall be cleaned each day or at the end of each trip as directed for the cleaning of day coaches under Regulation 8.

"Food boxes, refrigerators, lockers, drawers and cupboards shall be thoroughly cleaned and treated with a 1 per cent. solution of the aforesaid formaldehyde solution as often as necessary, and shall at all times be kept sweet and clean.

"All toilet-rooms, water-closets, urinals and toilet appliances in stations shall be cleaned daily, and when vaults or surface receptacles are used in connection with closets in stations, such vaults or surface receptacles shall receive a daily treatment with fresh lime or other agent approved by the State Board of Health. Toilet-rooms and closets shall be made fly-proof by means of screens on windows or other outside openings."

The Indiana regulations are as follows:

"Day coaches shall be thoroughly cleaned at the end of each trip and in no instance shall a day coach go uncleaned longer than two days. The thorough cleaning of day coaches shall consist as follows: (*a*) Windows and doors shall first be opened and the aisle strip, if there be any, removed from the car: (*b*) all upholstering dusted and brushed; (*c*) floor mopped or swept after it has been sprinkled with water, to which may be added an approved disinfectant; (*d*) after cleaning, as in (*c*), the floor should be scrubbed with soap and water, to which soda ash or like cleansing agent may be added, and after scrubbing, the floor should be mopped with a solution of formaldehyde of one or two per cent. strength or with a solution of other approved disinfectant; (*e*) all arms of seats, panels between windows, window ledges, windows, doors and door knobs shall be washed with soap and water, to which a cleansing agent may be added, and after washing, should be wiped off with an efficient disinfecting solution; (*f*) closet floors and walls shall be cleaned by sweeping and washing and wiping with a disinfecting solution, and urinals and hoppers thoroughly cleaned and disinfected; (*g*) water-coolers shall be frequently emptied, rinsed and scalded, and shall be filled with potable drinking-water when in service; (*h*) and lastly, day coaches shall be disinfected with formaldehyde gas in quantities of not less than 40 fluid ounces of 40 per cent. formaldehyde to each coach at the period of general cleaning and renovation, said period not to exceed ninety (90) days, and also whenever a case of any listed disease is known to have been carried.

"Plush seats and backs shall be removed when possible and dusted by air blast.

"2. Placards shall be displayed in all railway waiting-rooms in Indiana, having plainly displayed thereon the following notice:

"SPITTING ON THE FLOOR IS FORBIDDEN

"Consumption, la grippe, coughs, colds and all diseases of the air-passages are spread by spitting, and these maladies kill 12,000 people annually in Indiana. It is therefore forbidden to spit on the floor. Penalty, five dollars fine.

"It is the duty of train men to warn against violating this health rule. By order of the

"*Indiana State Board of Health.*

"3. Parlor, Buffet, and Dining Cars shall be cleaned at cleaning terminals, as set forth in Rule 1, carpets and draperies to be removed, dusted and sunned and aired, provided meteorological conditions permit. Food boxes, refrigerators, closets, drawers and cupboards to be cleaned, scalded and treated with a 1 or 2 per cent. solution of formaldehyde at least once each week in spring, summer and autumn months, and once every two weeks in winter months.

"4. Suburban, electric and street cars shall be cleaned as follows: (*a*) Windows and doors shall be opened and the aisle strip, if there be any, removed from the car; (*b*) all upholstering dusted and brushed; (*c*) floor mopped or swept after it has been sprinkled with water to which should be added an approved disinfectant; (*d*) after cleaning as in (*c*), the floor should be scrubbed with soap and water to which soda ash or like cleansing agent may be added, and after scrubbing, the floor should be mopped with a solution of formaldehyde of 1 or 2 per cent. strength, or with a solution of other approved disinfectant; (*e*) once each week the arms of seats, panels between windows, window ledges and windows shall be washed with soap and water to which cleansing agents may be added, and after such washing, should be wiped off with an efficient disinfecting solution; (*f*) closet floors and walls shall be cleansed by sweeping, washing and wiping with disinfectant solution every week, and floors of closets, urinals and hoppers shall be thoroughly cleansed and disinfected every day; (*g*) water-coolers shall be frequently emptied, rinsed and scalded, or they may be disinfected with a 2 per cent. solution of formaldehyde, and shall be filled with potable drinking-water when in service; (*h*) electric suburban coaches shall be disinfected with formaldehyde gas in quantities of not less than 20 fluid ounces of 40 per cent. formaldehyde to each coach at the period of general cleaning and renovation, not to exceed ninety days, and also whenever a case of any listed disease is known to have been carried. Plush seats and backs shall be removed when possible, and dusted by air blast. Carpets and mattings are condemned and forbidden in smoking compartments, but rubber aisle strips or linoleum may be used.

"Placards shall be displayed in all waiting-rooms and stations located in towns, villages and cities in Indiana, having plainly displayed thereon the following notice:

"SPITTING ON THE FLOOR IS FORBIDDEN

"Consumption, la grippe, coughs, colds and all diseases of the air-passages are spread by spitting, and these maladies kill 12,000 people annually in Indiana. It is therefore forbidden to spit on the floor. Penalty, five dollars fine.

"It is the duty of train men to warn against violating this health rule. By order of the

"*Indiana State Board of Health.*

"5. Conductors and brakemen in charge of steam trains, and conductors and motormen in charge of suburban electric and street cars, shall pay proper attention to ventilation, and shall promptly reprove and warn all persons who spit on the floor or otherwise befoul the car in which they are riding. They shall also inquire concerning any case of sickness which they may notice, and determine as best they can whether or not it is a listed disease,

and if found or suspected to be listed, the health officer at the next stop may be appealed to for the purpose of caring for the case as seems best.

"6. Sleeping Cars. Upon arrival at cleaning terminals, sleeping cars shall be cleaned as follows: (*a*) Windows, doors and ventilators opened; (*b*) upper berths let down, seat bottoms lifted off, and mattresses, blankets, pillows and curtains, etc., loosely displayed for airing, and, provided the weather will permit, all the articles named shall be aired outside the car; (*c*) carpets, rugs and portieres shall be removed from the cars, weather permitting, and dusted and aired in the open, otherwise the work shall be done as best can be in the wide opened car; (*d*) after cleaning, the floor should be scrubbed with soap and water to which soda ash or like cleansing agent may be added, and after scrubbing, the floor should be mopped with a solution of formaldehyde of one or two per cent. strength, or with a solution of other approved disinfectant; (*e*) all windows and woodwork shall be thoroughly cleaned with approved detergents and carefully wiped; (*f*) closets, spittoons and toilet arrangements shall be thoroughly cleaned and disinfected with an approved disinfectant every day; (*g*) sleeping cars shall be disinfected at least once a month in an approved manner with formaldehyde gas, as set forth in (*h*) of Rule 1, and shall also be disinfected if at any time it is known that a person with a listed infectious disease has been carried. Pullman conductors and porters shall see to it that as good ventilation as is possible is always maintained.

"7. The listed diseases are declared to be: Smallpox, diphtheria, scarlet fever, erysipelas and measles. All common carriers and their employees are forbidden to knowingly carry any person afflicted with the above named diseases.

"RECOMMENDATIONS

"It is recommended that conductors and brakemen be supplied with pocket paper pads having the following notice printed on each slip:

"*Health Notice.*

"Spitting on the floor is forbidden. It is filthy, makes a nuisance and is contrary to law. All diseases of the lungs and air-passages, also certain other diseases, are spread by dried spit. Over 12,000 people die annually in Indiana from 'spit diseases' caught from spitters. Not less than 200,000 cases of sickness are caused thereby in Indiana annually. Spitting on the floors and sidewalks must stop. Ladies do not spit. Gentlemen will not spit.

"*Indiana State Board of Health.*

"Conductors and brakemen should hand these slips to spitters. They may also be handed to passengers who are not spitters. Persistence in this matter will surely lessen the spitting evil. This will make traveling more pleasant and so encourage travel. Car cleaning will also be made less expensive.

"*Disinfection.*

"The best and cheapest disinfection for cars and rooms may be accomplished in the following way: Close all openings, and for each 1000 cubic

feet use 6½ ounces of permanganate potassium and one pint of 40 per cent. solution of formaldehyde. Place the permanganate in a large tin dish pan or any like vessel, then pour the formaldehyde solution upon it. The formaldehyde gas will be quickly set free and will penetrate plush, curtains, carpets and all parts of the car or room, causing complete disinfection. The rapid disengagement of the gas is an important point, and this method further commends itself because no fire or apparatus is required."

The Kentucky regulations are as follows:

"All day coaches engaged in regular traffic shall be thoroughly cleansed after each trip at such points as facilities for same have been provided. In no case shall such cleansing be less frequently performed than every third day of use. In such cleansing, all rugs, mattings and upholstered seats and back rests, when practicable, shall be removed from the coach to the open air for mechanical cleansing, and be exposed to sunlight when the prevailing meteorological conditions will permit.

"2. All interior surfaces in coaches are to be mopped, scrubbed or cleansed, at intervals of not more than ten days, with solutions of mercury bichloride, carbolic acid, tricresol or other disinfecting preparation preferred by any corporation and approved by this Board as to ingredients and strength.

"3. Spittoons are to be provided in numbers of not less than one for each seat in all smoking cars and toilet-rooms, and one at each end of all other day coaches and in all waiting-rooms. Placards provided by this Board shall be displayed at each end of all such coaches, and in all waiting-rooms, indicating the importance of using the spittoons, and it shall be a violation of these rules for any person to spit upon the floor, or platform, of any railway car, or other public conveyance, or upon the floor of any waiting-room or platform in any station or depot.

"4. All coaches of any kind in which an acute infectious disease has been carried shall remain closed and unoccupied after such person has been removed until it has been thoroughly cleansed and disinfected by the use of formaldehyde gas in quantities of not less than 40 fluid ounces of formalin to each coach. All day coaches in regular use for through travel are to be disinfected after cleansing, by some method approved by this Board, at intervals of not more than ten days.

"5. All toilet-rooms, water-closets, urinals, spittoons and toilet appliances are to be scrubbed with soap and hot water and disinfected with formalin, or other approved method, after each trip's use, and kept as clean as possible when on the road, and all similar rooms and appliances in stations shall be cleaned daily in the same way, and when vaults or surface receptacles are used in stations these shall be disinfected daily with fresh lime.

"6. All preceding regulations in regard to cleanliness and disinfection shall apply equally to sleeping, dining, buffet and parlor cars used in the service of the public.

"7. All blankets, curtains and hangings used in sleeping cars shall be exposed to superheated steam or other means of disinfection, approved by this Board, at intervals of not more than ten days, and all mattresses shall be treated at intervals of not more than sixty days.

"8. In each sleeping car there shall be carried spittoons of any sufficiently

sanitary type, meeting the approval of this Board, which shall, upon the occupancy of any upper berth, be placed therein by the car attendant, whose duty shall also be to notify the occupant of its readiness for use. Owners of sleeping cars must provide proper supports and buckets for such spittoons.

"9. No railway or sleeping car company operating cars within the limits of this State shall permit, and no porter or other employee shall sweep any such cars while en route or occupied by passengers, or shall brush or dust the clothing or belongings of passengers in the aisles or body of the cars while so occupied."

The Texas regulations are as follows:

"Employees of railway companies shall pay proper attention to ventilation, and shall promptly warn all persons who spit on the floor or otherwise befoul the car in which they are riding. They shall also inquire concerning any case of sickness which they may notice, and determine as best they can whether it is a contagious or infectious disease, and if found to be such, the health officer at the next stop may be appealed to for the purpose of caring for the disease as seems best.

"2. Each day coach used for passengers in this State shall be provided with one cuspidor for each seat or every two chairs, and one in each smoking apartment; except that in each parlor car there shall be as few as one cuspidor to every three seats and two cuspidors used in the smoking apartment; in each sleeping car shall be placed one cuspidor to each section and three cuspidors in the smoking apartment, one of which cuspidors shall be an unusually large one placed near the wash basin for use in washing the teeth; each cuspidor in every car used for passengers shall contain not less than one-third of a pint of an approved disinfectant solution, and the cuspidors shall be emptied, washed in a similar solution, and replenished each trip or every twenty-four hours.

"3. Day coaches shall be thoroughly cleaned at the end of each trip, and in no instance shall the day coach go uncleaned longer than two days when such coach is in use; the thorough cleaning of day coaches shall consist as follows: (*a*) Windows and doors shall be first opened and the aisle strip, if there be any, removed from the car; (*b*) all upholstery shall be dusted and brushed, using compressed air whenever possible; (*c*) the floor shall be mopped or swept after it has been sprinkled with an approved disinfectant solution; and after cleaning thus, the floor must be scrubbed with soap and water, to which soda ash or like cleansing agent might be added. (It is preferable to sprinkle the floor with sawdust saturated with an approved disinfectant before sweeping.) (*d*) Closet floors and walls must be cleaned by sweeping, and washing and wiping with an approved disinfectant solution, and urinals must be thoroughly cleaned and disinfected with same; (*e*) all arms of seats, panels between windows and window ledges, windows, doors and door knobs must be washed with soap and water to which a cleansing agent may be added; (*f*) water coolers must be emptied and scalded once in each twenty-four hours, and shall be filled with good and wholesome drinking water when in service.

"4. Sweeping is prohibited while train is in transit unless floor of car is sprinkled with sawdust wet with an approved disinfectant solutionton thoroughly keep down the dust.

"5. Parlor, buffet and dining cars must be cleansed at cleaning terminals as set forth in Rule 3. Carpets and draperies to be removed, dusted, sunned and aired. Food boxes, refrigerators, closets, drawers and cupboards to be cleansed, scalded and treated with a solution containing 2 per cent. absolute formaldehyde or such other disinfectant as the State Health Officer may approve.

"6. Day coaches must be thoroughly disinfected in the manner described in Appendix A, or by such other method as the State Health Officer may approve, immediately after any case of contagious or infectious disease, as defined in Appendix C, is discovered on board of said day coach, and also every day coach must be disinfected by said method on being sent to the repair shop for any cause, and before same is readmitted to service.

"7. Every sleeping coach operated in the State of Texas shall be cleaned at cleaning terminals according to the methods set forth in Rule 3, at least once each week; and must be disinfected at least twice each week, except coaches which are used in a continuous trip for more than three days and such should be disinfected at the end of each run, and in no instance shall such a coach be used for more than eight days without disinfection. Said disinfection shall be done according to the method described in Appendix A, or by such other method as the State Health Officer shall approve; and all blankets used in sleeping cars must be thoroughly washed at least every ninety days.

"8. Every day coach, parlor, dining or sleeping car operated within this State shall be provided with adequate and efficient appliances and equipment for ventilation, and it shall be the duty of the owners, operators and employees, to provide the best possible ventilation at all times that the said car is in use.

"9. Ice which is used in water-coolers in cars must not be dumped on floors, sidewalks, car platforms, where people have trod and expectorated, and then picked up by unclean hands and but into the drinking-water. It must be washed, and handled with ice tongs.

"10. Passengers, patrons, employees and others are prohibited from washing their teeth or expectorating in basins in sleeping cars or passenger coaches in this State, and near the wash-basins in each coach shall be conspicuously posted placards with the following inscription printed thereon: 'Passengers and employees are prohibited, by the laws of Texas, from washing their teeth and expectorating in wash-basins.'

"Large cuspidors shall be provided for such purposes as indicated in Rule 2.

"11. On each sleeping car operated in the State of Texas a fumigation record must be kept and preserved, and on same the following records are to be entered and kept, viz.,

"1. Date of each disinfection.

"2. Length of time devoted to each such thorough disinfection.

"3. Each item in said record shall be inserted immediately after each act recorded, and the signature of the person or persons doing said cleaning or disinfection must appear beneath the said records."

"*Appendix A.* The method of disinfection recommended by the State Health Officer (of Texas) is as follows: Use 6½ ounces potassium permangan-

ate and one pint U. S. P. solution formaldehyde for each 1000 cubic feet of space in the room. Sprinkle the floor with water before beginning, so as to render the atmosphere moist—the chemicals act better. Be sure no fire or open flame is in the room. Seal all cracks around doors and windows with strips of paper. Unfold all blankets and other kinds of clothing, and separate the mattresses, so that fumes can penetrate. Place the permanganate crystals in a jar or galvanized iron bucket, using at least a two-gallon bucket for one pound of crystals. Set this container in a tub, with a couple of bricks intervening. Place the tub in the middle of the room. When all is ready, pour the formaldehyde solution quickly into the bucket containing the permanganate crystals, and beat a hasty retreat, closing the door immediately. If any other method of disinfection is preferred by any individual, the State Health Officer will be glad to approve same, after satisfying himself that the desired method is the equivalent of the above method."*

"*Appendix C.* In these regulations wherever the words 'infectious or contagious diseases' occur, they shall be construed to mean any of the following diseases: Smallpox, diphtheria, scarlet fever or scarlatina, dengue or breakbone fever, yellow fever, tuberculosis or consumption, bubonic plague, Asiatic cholera, leprosy, trachoma, typhoid fever, cerebrospinal fever (epidemic), epidemic dysentery, measles, mumps, German measles (rötheln), whooping-cough and chicken-pox."

In July, 1908, Montana adopted regulations relating to car sanitation quite similar to those in Minnesota.

Iowa has certain special regulations which read as follows:

"(1) All railway passenger cars operated or used in this State, or occupied by passengers while in transit through the State, shall be fitted with water-closets and urinals so constructed as to properly disinfect discharges deposited therein before such discharges are removed or allowed to escape from the car.

"(2) Any manager or agent of a railway company neglecting to comply with the provisions of this rule, or any employee or other person allowing such discharges to escape from the proper receptacle without proper disinfection as herein provided, shall be deemed to have violated the rules and regulations of the State Board of Health and shall be prosecuted accordingly."

Kansas has no regulations of its own, but the regulations quite generally followed throughout the state are those embodied in a circular issued by the Union Pacific Railway Company, of which Dr. A. F. Jonas (Omaha) is Chief Surgeon.

The laws of New Jersey provide that: "The State Board of Health shall have a right to cause a sanitary inspection to be made of all chattels and persons in transportation through the State, and of the cars, boats and other vehicles in which such chattels or persons may be transported, and the said Board shall have the same right of inspection, procedure and con-

* The quantity of potassium permanganate required by the Texas and Indiana regulations is not sufficient under the Minnesota regulations.

trol in this respect as is or may be conferred by law upon the local board of health or local authorities in any township or city, or other local municipal government in this State, and when in the judgment of said Board it may be necessary, the said Board may require or cause an examination of vessels, cars, boats or other vehicles and of all baggage and persons, to be made, and may enforce such detention or disinfection as they may deem necessary for the public safety." (Approved March 31, 1887.)

This law is supplemented by an act approved April 14, 1903, relative to spitting, which reads as follows:

"Any person who shall expectorate or spit on the floor, side, seat or platform of any railroad or railway passenger car in this State, shall be deemed and adjudged to be a disorderly person; provided, that nothing herein contained shall apply to smoking cars or compartments of cars where smoking is permitted when said smoking cars or smoking compartments are not provided with cuspidors."

North Carolina passed a law in 1907 which reads as follows:

"That every person or railroad company, whether incorporated or not, engaged in the regular business of carrying passengers on its railroad cars in this State, shall have the passenger cars on their roads cleaned, brushed and dusted and the windows washed, if needed, at least once each day, and have in each car, in which male and female passengers are carried therein, a toilet-room for each sex, and have the same kept clean.

"2. Any person or corporation engaged in the business described in Section 1 of this act who shall wilfully or negligently fail or refuse to give orders to their agent or agents in charge of such cars and comply with the requirements of this act shall forfeit twenty dollars for each day that it refuses, to be recovered by any person suing for said penalty."

Mississippi has regulations which read as follows:

"Each day coach used for passengers for smoking must be provided with one cuspidor for each seat. Each day coach used for lady passengers must be provided with at least six cuspidors. Cuspidors to be emptied and cleaned thoroughly at the end of each trip or every twenty-four hours. This rule shall not apply to parlor cars, except that cuspidors must be provided for the smoking compartments.

"2. The floors of all cars may be swept in transit, provided it is first thoroughly sprinkled with water to prevent raising dust. If it be desired to remove rubbish or trash with broom and dust pan from portions of the car while in transit, sprinkling will not be necessary. Dusting of cars with a brush is prohibited, but it may be removed from walls and seats with a cloth.

"3. Containers of water for drinking in cars must be emptied and thoroughly cleansed at the end of each trip.

"4. Ice which is used in water-cooler in cars, must not be dumped on floors, sidewalks or car platforms where people have trod and expectorated. It should be handled with ice tongs to place it in the coolers.

"4. All persons are prohibited from spitting upon the floors of cars.

"6. Day coaches used for passengers must be fumigated whenever the necessity exists, at some point in this State acceptable to this Department.

"If a car becomes infected by being occupied by a person having a contagious disease, it must be disinfected immediately at the end of run.

"7. All persons must be prohibited from washing their teeth over or expectorating into basins which are used for bathing face and hands in passenger coaches. Large cuspidors should be provided for such purposes.

"8. All water closets in railway coaches must be kept well flushed with water and must be cleaned as often as necessary."

Mississippi has regulations governing sanitation in railway sleeping cars which read as follows:

"Each sleeping car used for passengers must be provided with at least one cuspidor for each section or compartment; cuspidors to be emptied and cleaned thoroughly at the end of each trip, or every twenty-four hours.

"2. The floors of all cars may be swept in transit, provided that it is first thoroughly sprinkled with water to prevent raising dust. If it be desired to remove rubbish or trash with broom and dust pan from portions of the car while in transit, sprinkling will not be necessary. Dusting of cars with a brush is prohibited, but it may be removed from walls and seats with a cloth.

"3. Containers of water for drinking in cars must be emptied and thoroughly cleansed at the end of each trip.

"4. Ice, which is used in water-coolers in cars, must not be dumped on floors, sidewalks or car platforms, where people have trod and expectorated. It should be handled with ice tongs to place it in the coolers.

"5. All persons are prohibited from spitting upon the floors of cars.

"6. All sleeping cars must be disinfected in a manner approved by this Department at the end of each third round trip, where the cars do not leave the State of Mississippi.

"Sleeping cars leaving the State are to be fumigated every second trip, where the trips are of not more than four days' duration, and every trip, if of longer than four days' duration, and every third trip, if only one-night run.

"Sleeping cars crossing the State are to be fumigated each round trip of six or eight days' duration, and at the end of each single trip where round trip is of more than eight days' duration.

"All carpets, curtains, blankets and bedding, except linen, to be disinfected with cars.

"*Provided,* That when any sleeping car is known to carry a case of infectious or communicable disease, it must be fumigated at the end of that trip, or it may be disconnected from train and fumigated at any station if required by this Department.

"7. All sleeping cars must be thoroughly cleansed at the end of each trip.

"8. In the event that sleeping cars passing through the State are not fumigated at terminals outside of the State, as required in Rule 6, they will be required to stop at some point inside of the State of Mississippi, approved by this Department, for fumigation.

"9. All persons must be prohibited from washing their teeth over or ex-

pectorating into the basins which are used for bathing face and hands in sleeping cars. Large cuspidors should be used for such purposes."

The Mississippi regulations governing sanitation of depots are as follows:

"Depots and public buildings must be provided with not less than one cuspidor for each room or hall, which must be emptied and cleansed once every twenty-four hours. This applies to rooms and halls in daily use.

"2. All depots and public buildings must be disinfected by fumigation whenever the necessity exists for it.

"3. Containers of water for drinking in depots and public buildings must be emptied and thoroughly cleansed at least once every forty-eight hours.

"4. The floors of depots and public buildings must be sprinkled with water before each sweeping, and must be kept clean.

"5. All water-closets in depots must be kept well flushed with water, and must be cleansed and disinfected as often as necessary."

The foregoing rules were put into force in Mississippi November 1, 1907.

Louisiana has regulations which read as follows:

"Each passenger coach or sleeping car used for passengers must be provided with one cuspidor for each seat or every two chairs. Each cuspidor must contain not less than six ounces of a disinfectant solution approved by the State Board of Health. The cuspidors must be emptied, washed in a similar solution and replenished each trip, or every twenty-four hours.

"Day coaches shall be thoroughly cleaned at the end of each trip and in no instance shall a day coach go uncleaned longer than two days. The thorough cleaning of a day coach shall consist as follows:

"Windows and doors shall be first opened and the aisle strip, if there be any, removed from the car.

"All upholstering dusted and brushed.

"Floor mopped or swept, after it has been sprinkled with a solution containing 8 per cent. absolute formaldehyde or other disinfectant, as approved by the State Board of Health, or preferably cleaned by sprinkling with sawdust, moistened with said formula, and sweeping. After cleaning, as prescribed in the foregoing part of the present paragraph, the floor must be scrubbed with soap and water.

"Closet floors and walls must be cleaned by sweeping and washing and wiping with a solution of formaldehyde as described above, or such other disinfectant as the State Board of Health may approve, and urinals must be thoroughly cleaned and disinfected with same or similar solution.

"All arms of seats, panels between windows and window ledges, windows, doors and door knobs must be washed with soap and water, to which a cleansing agent may be added.

"Water-coolers must be emptied and scalded once in each twenty-four hours, and shall be filled with good and wholesome water when in service.

"All upholstered seats must be covered with clean linen and changed at the end of every run.

"Day coaches must be thoroughly disinfected in the manner described in the bulletin on disinfection at least once every quarter, and immediately

after any case of contagious or infectious disease has been discovered and removed.

"Every sleeping coach operated in the State of Louisiana must be disinfected at the end of each run, and in no case must any sleeping coach be used for a period of time longer than one week without being disinfected. Said disinfection must be done in the manner prescribed in the bulletin on disinfection.

"Ice which is used in water-coolers in cars must not be dumped on floors, sidewalks or car platforms. It must be washed, and handled with ice tongs.

"Brushing of teeth and expectorating in basins used for lavatory purposes is prohibited, and placards calling attention of passengers and employees shall be hung in a conspicuous place in the dressing-rooms of passenger coaches.

"Employees of railway companies shall pay proper attention to ventilation, and shall promptly warn all persons who spit on the floor or otherwise befoul the car in which they are riding. Brushing of passengers' clothing and hats in coaches is prohibited.

"Parlor, buffet and dining cars must be cleansed at cleaning terminals as already set forth in these regulations. Carpets and draperies to be removed, dusted, sunned and aired. Food boxes, refrigerators, closets, drawers and cupboards to be cleansed, scalded and treated with a solution containing 2 per cent. of absolute formaldehyde, or such other disinfectant as the State Health Officer may approve.

"On each sleeping car operated in this State, a log book, permanently bound, must be kept and preserved, and in this log book the following records are to be entered and kept, viz.,

"1. Date of each disinfection.

"2. Detailed method of disinfection.

"3. Date of each thorough cleansing.

"4. Length of time devoted to each such thorough cleaning.

"5. When and where the linen covers for upholstered chairs were changed.

"6. Each item in said record shall be inserted immediately after each act recorded, and the signatures of the person or persons, doing said cleaning or disinfection, must appear beneath the said records in the form of a note, as follows:"

While Oklahoma has as yet reported no regulations relating to car sanitation, it has already, through its Attorney-General, brought action against one of the railroad systems operated in the State to restrain it from sweeping cars in transit while carrying passengers therein.

The railroads throughout the country have regulations relating to car cleaning, etc., quite similar to some of the State Board of Health regulations, and some State sanitary authorities depend upon these.

I have not quoted these State regulations to show their value, but rather to show how little has been accomplished by sanitary authorities in matters pertaining to car sanitation and how inefficient those formulated are. Railroads have very few trains that start and finish in any one State, hence a

single State seldom has control of any one train throughout its entire journey. Railway sanitation is therefore an interstate problem, and must be dealt with as such. It might be possible for State sanitary authorities in conference or through a committee, and acting in conjunction with practical railroad operators, to formulate certain regulations that would be applicable to the entire country; but such regulations would only have the force of law after having been put into effect through the legislature of each and every State. Even then there could be no uniformity in the enforcing of such regulations. There should be federal legislation covering these points, as there now is covering other interstate problems.

Railway sanitary problems may be enumerated as follows:

1. *Stations*—construction, lighting, ventilation, toilet accommodations; construction and care of station platforms, care of station surroundings, *i. e.*, approaches, shipping pens, etc.

2. *Cars*—ventilation, protection from smoke and dust, toilet accommodations, water-supply, car cleaning, etc.

3. *Prevention of disease*—exposure in cars, care of cars, policing of stations, etc.

The station is not a source of great danger so far as the spreading of disease is concerned. Still there are important sanitary problems in connection with these buildings. During a recent trip of inspection I visited several stations where it was necessary in midday to strike a light in order that I might note the condition of the floors in the toilet-rooms. Of course, such rooms were often dirty, partly due to the fact that passengers using them were careless, and partly because those having charge of such dark rooms did not consider it necessary to free them of the dirt that was concealed by the darkness. These conditions were primarily due to the inexcusable negligence of the architects who designed the stations, for in most instances the toilet-rooms were against the outside wall of the building (as they should have been), but the windows were too small, or too high up in the wall, or darkened by artistic overhanging roofs or by stained glass used in their construction. In the men's toilet-rooms the closet seats were often unfit for use, and the odors from these rooms had free access into the men's waiting-rooms. Such conditions brought to the attention of the proper railway officials should insure to the architect responsible for such construction the loss of any further work for that company.

Not enough attention is given to the cleansing of toilet-rooms.

It is a fact that the ordinary station waiting-room is unattractive the year around. In winter it is stuffy and ill-smelling, often due in part to the condition of the closets referred to above. In the summer it is the home of flies. It follows that in winter or summer the passenger who has to wait for any considerable time at such a station is restless, and, if an able-bodied

man or woman, is constantly going out of the room for a change of air, or a rest from the annoying flies. It follows that travelers are irritable under such conditions, and the criticisms passed upon the road are intensified by the unsanitary conditions in the station.

More attention should be given to the cleanliness of stations. Not long ago, while waiting in a well-built station located in a city with a population of 10,000, a porter came into the room, which was dirty with the refuse and lunches of the previous day, and began dry-sweeping with a long-handled brush. Of course, the dust raised was unbearable, and the only thing to do for those who were waiting in the room was to go out and promenade on the platform, for there were no outside seats. This room should have been swept the night before, or early in the morning before passengers began to use it. It should not have been dry-swept at any time.

The appearance of the grounds about a station may not be of great sanitary importance, but a station having for its environment a green lawn, a few shrubs, and an occasional flower has a great advantage from a sanitary point of view over an ill-kept place, for the loafers who so frequently assemble about stations are less disposed to indulge their filthy habits about a well-kept place. Railway station esthetics, civic pride, and improved sanitary surroundings are very apt to go hand in hand.

Spitting in or about stations should be prohibited, for there is a possibility of infection where dried sputum accumulates.

The proper care of the day coach is important. Such coach is by many considered a great disseminator of tuberculosis, but this is probably based on mistaken ideas. It certainly is an open question whether tuberculous infection ever takes place because of tubercle bacilli in a coach. This fact may as well be frankly recognized. Nevertheless, the foul air and lack of ventilation in the ordinary day coach, during the winter time especially, may produce an irritation and congestion of the respiratory tract that may result in a cold, and favor a tuberculous implantation that otherwise would not have occurred. There is no question but that improved sanitation in the railway coach, on the city trolley car, and on the suburban car is badly needed. I do not believe there are more than two railway systems in the United States that have their day coaches properly ventilated. The ventilation of trolley cars is notoriously bad.

The question of spitting on car floors is often discussed, and the use of the cuspidor advocated. The spitting habit is disgusting, and should be controlled by police supervision if necessary. The use of the cuspidor in the day coach of American cars as they are now constructed is hardly practicable. It is quite difficult to spit into a cuspidor placed between seats unless the seats are arranged vis-à-vis, thus giving the spitter room. Of course, the cuspidor cannot be tolerated in the aisle of the car. Many of

the regulations recorded in this paper call for the carrying of cuspidors on day coaches in order to supply the passengers who really need them. I am inclined to think that it would be far more practicable and economical for the railway company to supply such passengers with individual spit-cups rather than with the cuspidor.

It will hardly do to say that there is no danger of contracting tuberculosis on the American day coach, for there certainly is a possibility of receiving local if not general infection from the use of common drinking-cups and tumblers, and I am strongly of the opinion that these possible sources of infection should be abolished from all cars.

Not long ago I saw a woman traveling with her husband in a sleeping car—a man far advanced with pulmonary tuberculosis—use the glass belonging on the car for this man to drink from. Incidentally, I may say that she slept in the same berth (lower) with this patient, the windows closed, and this in August. If this woman does not die of tuberculosis, it will not be due to any precautions taken by her against infection; as she was an intelligent looking woman she should have known enough to carry an individual drinking-cup for this man.

The cuspidor in the American smoking coach is not practicable with the seating arranged as at present. It is to be hoped that in the near future railway officials may be persuaded to place the seats of smoking coaches on the side, with possibly four sections in the middle with seats vis-à-vis, as is frequently done in some of the cars now used for city and suburban traffic. The argument that the side seat is not so comfortable as the one facing the engine is a poor one. Even admitting that it is not quite so comfortable, the advantages to be gained by such a system of seating far outweigh the disadvantages of posture. There are but few passengers who make long journeys in the smoker, and those unfortunates who have to so travel can easily secure the seats in the middle of the car after a time. It should be noted that the library and observation cars so generally used at the present time on our best trains force the passengers to sit with the back to the outside wall of the car. True, they are seated in chairs, but the smoking car with side seats can be provided with division arms which will make each seat almost as comfortable as a chair and at the same time prevent one passenger from using more space than he has paid for. The argument is often made by the railway people that the seating capacity of the car arranged as suggested above would be reduced over that of the present method. This is not true to any appreciable degree, and in fact amounts to absolutely nothing when we take into account that, with the side seat, a passenger can occupy but one seat, while with the present method of seating a passenger in the majority of cases occupies two and sometimes four seats.

It is time to make a protest against the style of cuspidor generally used

on cars in this country. There are two prevailing types: (1) the iron cuspidor with weighted base to keep it from tipping over, and contracted neck to keep the contents from spilling out; and (2) the small cuspidor with sides sloping upward toward the center, making the top smaller than the bottom—the cuspidor so generally used in the sleeping cars. The first of these is but rarely if ever well cleaned. The second is hard to spit into, and if missed in part the expectorate is apt to lodge on the side of the cuspidor, later to be wiped off by the clothing of travelers. A cuspidor should not be so high as to be easily upset and the top should have a greater diameter than the bottom. It should be so constructed as to be easily opened and cleaned. Such cuspidors are required on certain European railways. The Pullman company—one of the chief offenders—might be excused for a sufficient length of time to permit it to use up its old stock of ill-shaped cuspidors, but it should be required to have all new cuspidors made of proper form and construction.

If smoking cars were properly seated, a sufficient number of good-sized cuspidors could be placed in each car, and there would then be no excuse for making the car so filthy as is often the case under present conditions.

Much has been said about the dangers of contracting tuberculosis in sleeping cars. Without question there is some danger, but this has probably been overestimated. The danger of local (skin) infection is probably greater than that of pulmonary infection. There is, however, a sentimental objection to too close association with the tuberculous, and this is not easily overcome. In fact, it is a question whether we should wish to overcome it, for it is better that people should be too careful than not careful enough.

The points that need attention in the Pullman car, in addition to that of the cuspidor, are the bedding, the ventilation of the berth when made up, the use of the wash-basin for teeth-cleaning, the use of common drinking-glasses, etc. Theoretically, the danger from the blankets has been diminished by the use of a third sheet as a counterpane, but practically this third sheet is of little, if any, protective value. The sleeping berth is generally made up with two blankets for covers. This is too much for the ordinary sleeper at all times, and the result is that one or both blankets are thrown back. To throw off one or both blankets necessitates the throwing back of the third or upper sheet. It thereupon ceases to afford any protection from the blankets. A long upper sheet to turn back over the blankets at the top is far better than the third sheet.

The lack of ventilation in the lower berth when made up is simply beyond description. This can and should be corrected. It will undoubtedly mean

a change in car construction, but this can and should be met from this time on in all new cars.

Arrangements should be made so that it might be possible to clean one's teeth without spitting into the basins provided for lavatory purposes. This question is now being considered, I believe, by those interested in the construction of the Pullman cars.

The common drinking-glass or cup should be abolished from all cars. Every passenger on the Pullman cars at least should be required to carry his own drinking-cup.

All closets on cars are thus far defective, not only because they require the disposal of excreta along the railway track, but also because with present construction they must be closed for considerable periods when trains are passing through cities, thus greatly inconveniencing travelers. The danger from excreta along a railway is often ridiculed by railway officials, but when we consider the actual amount thus deposited and put in motion by moving trains we must concede, I think, that there is a real danger. Bearing upon the possibility of infection from excreta, let me quote the following*: "In the year 1905 there were sold in the United States 700,000,000 railway tickets, and these tickets called for 2,000,000,000 miles of travel. As there are approximately 200,000 miles of railway in this country, this would average about 30 miles per ticket, or 90,000 persons per annum over each mile of railway in use. If each passenger excreted on an average from the intestines one-half pound a day and of urine 50 ounces, we would have deposited on the narrow rail strip 45,000 pounds, or 22½ tons of human excrement and 4,500,000 ounces of urine, for there is at present no contrivance to carry these to a point where they may be incinerated or disinfected. These excreta are deposited on a strip of ground 5 feet 7 inches wide, there allowed to dry, and later thrown into the air by the rapid motion of cars."

One State Board of Health has by regulation ordered that all cars shall be fitted with water-closets and urinals so constructed as to permit of proper disinfection of discharges deposited therein before such discharges are allowed to escape from the car. This is simply absurd at the present time, for with any system of closet now in use in the United States the disinfection of stools cannot be carried out on any train. It is time for some inventive genius to devise some means of carrying excreta on cars.

One great trouble in dealing with railway sanitation in the past has been due to the lack of harmonious action between the railway operators and sanitarians. The sanitarian knows what is theoretically wanted, but he has no workshop in which to work out his ideas. The railway company has the workshop, but it practically refuses to use it for working out the

*From Michigan Public Health, Sept., 1906, p. 44.

sanitarian's ideas, although such ideas might finally be of great commercial value to the company. Too often the railway operators satisfy themselves by simply saying that the sanitarian's ideas are impracticable, or possibly by referring the matter to some chief surgeon who knows nothing of sanitation outside of the operating room. It is unfortunate indeed that railway officials cannot appreciate the importance of sanitarians in railway work. When the time comes that such appreciation is shown, then the comfort as well as the safety of passengers will be conserved and the railway company will profit thereby even in a financial way.

Finally, as to diseases contracted in cars: Some of the dangers can hardly be avoided, for there are constantly travelers suffering from smallpox, scarlet fever, diphtheria, measles, whooping-cough, influenza, etc., on trains. We must simply take our chances in such matters. These passengers may be ignorant or indifferent as to their true condition.

Let us trust that in the near future sanitarians may be recognized as a necessary part of the operating force dicussion of a railway company.

DISCUSSION.

Dr. Crowder, Superintendent of Sanitation of the Pullman Car Company, said that railroad sanitation does not exist at the present time, except in certain quarters, because of lack of uniformity of the health laws of the various States through which the Pullman cars travel. State boards of health should make it a practice to consult with the railroad companies as to the reason why certain things constitute dangers, and the practical means of executing measures directed against unsanitary conditions. Dr. Crowder described the measures adopted and enforced by the Pullman Company, which are designed to comply with the demands of the boards of health in the States over which their cars travel. The Pullman cars must be disinfected at least once a month; every car which has carried a visibly sick person is disinfected at the end of the trip. If such a sick person has vacated a berth en route, the car must be disinfected at the end of the trip. Cars that make long transcontinental trips are disinfected at the end of the trip. He described in detail the new ventilating system, the new cuspidor, and the new basin designed to obviate the evils associated with cleansing the teeth.

Dr. J. N. Hurty (Indianapolis) said that he was not so much concerned about railroad sanitation as he used to be, because we all had seen the wonderful development of the Pullman Company, which made closets and wash-rooms very good. It has been found advisable to do away with carpets, and the Pullman Company has replaced these with a material more sanitary and durable. It is very difficult to find a material to replace plush

in the car seats. The ventilation of upper berths is very defective. A new device is being tested on some roads. This is a duct which will provide plenty of air. Dr. Hurty said that not long ago he found himself traveling with several presidents of important railroad lines, who, in discussing the matter of sanitation, expressed the opinion that it was very difficult to realize ideal conditions in a Pullman car, for the reason that many factors had to be taken into consideration in a "house on wheels" traveling at a speed of forty miles an hour.

What can a railroad company do to the passenger who expectorates on the floor or soils the seats with eggs and jam? In a particular station there are fourteen trains in and out. They had to be ventilated according to the only system that is now in use, through the deck of the car. They came to the terminals in a filthy condition. When ventilation is well carried out, there are always passengers who prefer to breathe foul air, and they object to the ventilation.

SECTION VI.

State and Municipal Control of Tuberculosis (*Continued*).

EIGHTH SESSION.

Friday Morning, October 2, 1908.

STATISTICS OF TUBERCULOSIS.

Section VI was called to order by Dr. Edwards Liceaga, of Mexico, honorary president of the Section, on Friday morning, October 2d, at half-past nine o'clock.

COLLECTION OF STATISTICS OF TUBERCULOSIS.

By Dr. Cressy L. Wilbur,
Chief Statistician, Bureau of the Census, Washington.

"We may decry statistics as much as we like, but when we see the effects of a disease set down in cold columns of black and white, we have no longer any idea of submitting to it as inevitable. We are going to get right up and do some fighting."—Dr. Woods Hutchinson, "Tuberculosis, a Scotched Snake," in "Saturday Evening Post," September 19, 1908.

Statistics hold within themselves the history of the past, the guidance of the present, and the prophecy of the future of sanitation. Modern public hygiene has been evolved from the studies based upon vital statistics, and the dawn of the present era of national, State, and municipal sanitary improvement immediately followed the institution of official systems of registration of births and deaths. In America sanitary work has possibly outstripped the progress of registration of vital statistics; yet we may doubt the soundness of that development of public health work that is not based upon, and intimately correlated with, dependable vital statistics. As Dr. John S.

Fulton, the Secretary-General of the International Congress on Tuberculosis, has forcibly said: "Public hygiene is built upon, is controlled and directed by, and is everlastingly in debt to vital statistics. . . . Every wheel that turns in the service of public health must be belted to this shaft, otherwise preventive medicine must remain invertebrate and unable to realize the profits available from the magnificent offering of collateral sciences." This is just as true in the public health work for the prevention of tuberculosis as in any other class of public health work, and it is with the plea that practical sanitary efforts against tuberculosis, and against all other preventable diseases as well, may no longer remain "invertebrate" in the United States, or in a very large portion of the United States, that I come before you to urge the collection of vital statistics, and the collection of better vital statistics, as the most efficient and fundamental means of aiding in the prevention of tuberculosis in this country.

In the pamphlet on "Tuberculosis in the United States" which I had the honor of preparing on behalf of the Bureau of the Census for distribution to the International Congress on Tuberculosis, I have endeavored to bring out some of the most important facts relating to the mortality from tuberculosis in the United States as collected by the decennial censuses from 1850 to 1900, and as published in the annual reports on mortality statistics from 1900 to the present time. Also—and I presume it may startle some members of this Congress who are not aware of the backward condition of the United States in this important function of government as compared with other civilized nations—I have attempted to point out the pressing necessity, from the practical sanitary point of view alone, of the extension of adequate methods of registration of vital statistics over the entire area of the United States. Partial and incomplete statistics should not be tolerated by a country which should stand in the forefront of progress in the protection of the lives and health of its citizens, for which purpose it is universally admitted by all competent sanitary authorities such statistics are indispensably necessary. In the conservation of national resources, to which attention has only lately been directed by President Roosevelt, there is none which has been more needlessly squandered than that of the people themselves. "The State has no material resources at all comparable with its citizens, and no hope of perpetuity except in the intelligence and integrity of its people."* Is it not worth while to record the births and deaths of the inhabitants of the United States? And when, in addition to the legal and personal importance of such records, it is admitted that the resulting vital statistics are of indispensable sanitary usefulness, it would seem that the people of the United States need only realize their present condition in this respect in order to remedy it. To bring about such a realization may be one of the important services to

* Catalogue of Ohio State University, quoted by Collier's, August 29, 1908.

be rendered by this International Congress, in whose exhibits the great usefulness of the vital statistics collected by other nations to their practical work in the prevention of tuberculosis may be clearly seen.

I have little interest in statistics as mere statistics—as dead figures—apart from their practical usefulness as guides to work. Some of you were perhaps amused by a clever caricature in a recent issue of "Puck" in which a framed motto appears upon the wall: "What is Home Without Statistics?" Statistics are not intended for light reading in the home, as a rule, although many a bright magazine article is practically a statistical exposition; but how many a home has been wrecked by the loss of the husband and father or wife and mother, or saddened by the untimely deaths of children, from preventable diseases, chief among which is tuberculosis, whom a little attention to the teachings of vital statistics, and the employment of modern methods of public hygiene based upon vital statistics, would have saved? For people will not spend money and time to prevent disease until they realize the importance of so doing, and this cannot be shown until deaths and the causes of deaths and sickness are properly registered and the results of such registration are statistically compiled for the use of the people and their sanitary servants.

One of the most important services of vital statistics to the "State and Municipal Control of Tuberculosis" with which this Section is concerned is to present reliable statements of the exact amount of tuberculosis present, in all of its various forms, in the area subject to preventive work; to trace its progress, whether increasing or decreasing, and how affected by the various methods of restriction that may be employed; and to compile the data whose comparison with facts relating to climate, housing, occupation, medical treatment, establishment of dispensaries and sanatoriums, etc., may suggest better means or conditions for the prevention of sickness and deaths from this disease. The comparison of the mortality from tuberculosis with that of other important diseases indicates at once the preëminent need for tuberculosis prevention because it is the most frequent cause of death in most of the countries of the world. The fact that the death-rate from tuberculosis has been constantly and rapidly decreasing for many years past, as shown for England and Wales and Massachusetts in the colored diagram contained in the census pamphlet, and also, by what figures are available, for the registration area of the United States, fills us with hope for the future, and perhaps may lead us to expect the total suppression of this disease within the lifetime of children now living. If the curve representing the death-rate in Massachusetts from all forms of tuberculosis be produced according to the rate of decrease shown from 1881 to 1906, it will intersect the base-line of the future at the point of *no deaths* about the year 1935; and the curves for England and Wales and the United States (registration area) will arrive at the disap-

pearance of the disease some ten years later. But it should be remembered, on the one hand, that a curve approaching its limiting line may show a decreasing rate and amount of decrease; and, on the other hand, that the organized warfare against tuberculosis throughout the world, of which this International Congress on Tuberculosis is only a beginning, ought to insure more rapid progress than ever before in the suppression of this disease. The statistics warn us, while they encourage us with the knowledge that tuberculosis has long been declining under ordinary sanitary means, not to attribute a mere continuance of such ordinary decrease to the special measures of restriction now coming into vogue. Moreover, the statistics of some countries do not indicate a decreased mortality from tuberculosis such as characterizes those of England and Massachusetts, and it would be a mistake to predict the time for the final extermination of tuberculosis from the results obtained under the most favorable circumstances.

The collection of statistics of tuberculosis, and of other diseases, is of value not only for the statistics collected and their practical sanitary uses, but it is essential as a mode of sanitary administration. The knowledge obtained is important, and the process of obtaining that knowledge brings the sanitary administrator into intimate touch with the physicians attending the sick, the nurses, families, friends, and neighbors concerned, enables instruction to be given to them, and permits immediate and direct action to be directed by the health officer to the exact place and at the exact time when it is likely to be most effective. This is because the collection of statistics of tuberculosis means ever and always the immediate registration of sickness and deaths from tuberculosis. By immediate registration of sickness is meant prompt notification of the occurrence of the disease as soon as it comes to the knowledge of the attending physician, followed up by such additional reports during the progress of the disease as may be required, and completed by a final report on the termination of the disease in recovery or death. By immediate registration of deaths is meant their registration within a short time after their occurrence, and before the bodies of the deceased persons are disposed of by interment, cremation, or otherwise, or removed from the registration unit of area in which the death occurred. This object can only be attained, as experience has conclusively demonstrated in the United States, through the rigid requirement of a burial or removal permit, issued by the local registrar to the undertaker or other person disposing of the body, and without which no body of a dead human being is allowed to be interred or removed under penalty. We should have, then:

(*a*) Registration (notification) of all cases of tuberculosis.

(*b*) Registration of all deaths from tuberculosis.

The problem of registration of sickness and deaths varies in complexity according to the extent of the area embraced and the possible conflict or

interference of legislation, as depending upon national, State, or municipal authority. We have to consider—

1. National registration of tuberculosis:
   (*a*) Sickness.
   (*b*) Deaths.
2. State registration of tuberculosis:
   (*a*) Sickness.
   (*b*) Deaths.
3. Municipal registration of tuberculosis:
   (*a*) Sickness.
   (*b*) Deaths.

Now in the United States there is not, and it is assumed that there never can be under the present limitations of the Constitution, a direct registration of sickness and deaths by the general government. The enumeration of deaths and sickness, as by census enumerators at the time of the taking of the decennial census of population, is in no sense registration, and the method should no longer be continued. It follows that the national statistics of the United States are dependent upon the collection of proper data by the State or city registration authorities, and it is an important part of the present work of the Bureau of the Census to aid in the extension of the "registration area," from which satisfactory vital statistics may be derived.

The principal source of mortality and morbidity statistics must be the registration States, and the enactment and enforcement of uniform and effective registration laws for all of the States of the Union is the first and most urgent requirement for obtaining adequate national statistics of tuberculosis. We are fortunate in that this phase of the subject has been thoroughly studied from a practical standpoint, and we know definitely just what kind of a law will give good results in actual operation for the registration of deaths, and just what provisions will prove futile and prevent success. There is no need of further experimenting with a voluntary or semi-voluntary system, supposed to be enforced without penalties and depending upon the belief that physicians or undertakers can be led to make returns directly to a State or county officer. There is no need of considering for a moment any plan of obtaining returns of births or deaths through any county officer (county clerk, county health officer, judge of probate, etc.); this plan has been thoroughly tried in many States and the results have invariably been worthless. There is no need of planning to enumerate births and deaths, by supervisors or assessors, at the end of the registration year; this is the old and now discarded census method of 1850, but was adopted again, as late as 1906, in Iowa for births. There is no hope of success if adequate provision for the necessary expenses of the administration of a registration law—which are but moderate—are not provided, or if there is no efficient execu-

tive officer—not a mere political time-server—to see that the law is uniformly and effectively executed throughout the State. The positive requirements of successful registration of deaths were summarized by a committee of the American Public Health Association in coöperation with the Bureau of the Census in 1901, have since been applied to the drafting of laws in force in many States, and have recently been affirmed as rules of statistical practice by the Association at its meeting at Winnipeg, August, 1908:

Essential Requirements for Registration of Deaths.

1. Deaths must be registered immediately after their occurrence.
2. Certificates of death of standard form should be used.
3. *Burial or removal permits* are essential to the enforcement of the law.
4. Efficient local registrars are necessary.
5. The responsibility for reporting deaths to the local registrar should be placed upon the undertaker or other person having charge of the disposition of the body.
6. The Central Registration Office should have full control of the local machinery, and its rules should have the effect of law.
7. The transmission and preservation of returns should be provided for.
8. Penalties should be provided and enforced.

A model bill for the registration of births and deaths has been prepared on the plan of similar measures recommended by the Bureau of the Census, and has been approved by the House of Delegates of the American Medical Association and by the American Public Health Association. It will be submitted to the legislatures of the various non-registration States, with the coöperation of their sanitary authorities, and it is possible, with the success of the laws already enacted or soon to be passed, that the United States will have nearly two-thirds of its territory under the operation of such legislation by 1910, the year of the next decennial census. But the registration of sickness from tuberculosis (or other diseases) is in a much more backward condition, and presents inherent difficulties which prevent this very necessary part of sanitary administration from even being undertaken in many States. In fact, nowhere in the United States or in the world are morbidity statistics collected with the precision with which mortality statistics are obtained in many States and countries.

The reason for this condition, at least in the United States, would seem to lie in the fact that there is no general agreement, such as exists for the registration of deaths, as to the necessary methods of procedure, or even as to the essential principles that should be observed in framing such legislation. It is largely a matter of haphazard experiment, is undertaken for only a limited list of diseases and chiefly for municipalities, and the law is usually but very imperfectly enforced. Pains are not taken to check up returns

with the mortality records and prosecute cases of delinquency. It follows that the results in various areas are of very unequal value and therefore not comparable; neither can any reliable deductions of fatality or case rate be made. It would seem also that it is unreasonable to expect success in the registration of sickness from tuberculosis in States or cities where the deaths themselves are not registered. Upon the latter we have an absolute check—the burial permit—and can know whether all deaths are or are not recorded. It is not probable that a State or city that neglects this elementary requirement will secure useful data in a kind of registration much more difficult to enforce. It follows that the first and absolutely necessary step before attempting to institute a system of registration of sickness from tuberculosis is to install an effective system for the registration of all deaths, if no such system exists. Such a procedure will render complete sickness reports possible after the profession and the people have been sufficiently educated to its importance and trained to obey the law for the registration of deaths. It is futile to expect even approximately complete returns of sickness when the deaths themselves are not recorded, as is the case in a large portion of the United States. Hence the most effective action that could be taken by the International Congress on Tuberculosis and by its members in the United States at the present time, with a view to the ultimate complete notification of sickness from tuberculosis—an indispensable aid in the warfare against this disease—is to advocate and work for the extension of the registration area for deaths until the entire United States is included therein. Such action is recommended in the proposed draft of resolutions which may be found upon page 43 of the census pamphlet on "Tuberculosis in the United States":

A. Indispensable Importance of Registration of Sickness and Deaths from Tuberculosis.

1. The registration of sickness and deaths from tuberculosis is of indispensable importance to a sanitary administration which undertakes to combat this disease, and the registration (notification) of sickness from tuberculosis should be of special benefit to the tuberculous sick, to their medical attendants, and to their families and friends. For its full value, especially for administrative and statistical purposes, such registration ought to be complete; and it should be considered a paramount duty by legislators, sanitary officials, the medical profession, and the press and public, to bring about such complete and effective registration of all deaths and sickness from tuberculosis.

2. The first step, in the United States, must be to secure the proper registration of all deaths, from whatever cause; the registration of deaths from tuberculosis is merely a part, although a very important one, of the general problem. It is useless to attempt adequate registration of sickness when deaths are not registered. The organized efforts and coöperation of the American Medical Association, the American Public Health Association, the

Conference of Commissioners on Uniform State Laws, the United States Public Health and Marine-Hospital Service, and the United States Bureau of the Census, to secure the adoption and enforcement of adequate laws for the proper registration of deaths and the extension of the registration area of the United States, are, therefore, most cordially commended by the Congress on Tuberculosis as affording the first and absolutely indispensable means for the control and suppression of tuberculosis in this country, and all who are interested in the movement for its control are earnestly requested to help to secure the necessary legislation, and to support it when secured and to seek to educate public sentiment on this subject, to the end that the United States may attain a complete and uniform system of registration.

Prompt notification of illness from tuberculosis and the complete statistics of morbidity based thereon must be recognized as of paramount importance to sanitary administration and the prevention and control of the disease. It is the object at which we should aim in making the registration bureau of the greatest value to the general work of the public health office in connection with tuberculosis. It is of particular importance to the welfare of the tubercular sick. For the individual the accounts are closed when it comes to the mortality statistics. The logical mode of procedure is first to secure the complete registration of all deaths, and then to build upon the foundation of complete mortality statistics the superstructure of complete registration of cases of tuberculosis (and other diseases). Any other plan is sure to be attended with complete or partial failure, and will only help to swell the mass of worthless and unreliable "statistics" that now perplex and annoy the sanitary inquirer.

It is not necessary to give much attention to the third subdivision, municipal registration of sickness and deaths. The same principles should govern, namely, first to secure complete registration of deaths, then add the notification of sickness enforced through the agency of the mortality returns. Municipal registration is chiefly valuable in the absence of an effective State law. It is far preferable to have a general law in operation for the entire State area, and whose results are thus perfectly comparable for all cities in the State. On the other hand, where general State laws are out of the question, a beginning of a State system of registration, both for deaths and sickness, must be made in the cities. It is desirable that such municipal systems should merge in the general State system as soon as that can be constituted, or at least that they should be thoroughly harmonized and correlated with it.

The Medical Certification and Statistical Compilation of Deaths from Tuberculosis.—Assuming that we possess a fairly satisfactory system for the registration of all deaths, including deaths from the various forms of tuberculosis, and that to this has been added a system of prompt notification of cases of tuberculosis, it is a matter of no small importance that reports of tubercu-

losis as made by the attending physicians upon morbidity returns or upon certificates of death shall be of a precise and definite character, and that the compilation of such data shall be made according to a uniform plan, so that all official statistics of tuberculosis shall be comparable. The chief forms of tuberculosis ought to be presented according to a predetermined list which shall be best adapted to bring out the important clinical distinctions of the disease, and be most serviceable to the practical sanitary official. Such statistics should be internationally comparable, so that we may see clearly just what forms of tuberculosis most prevail in certain countries, be able to know the exact condition of the world to-day, so far as mortality and morbidity statistics are registered, and also be able to trace the course of tuberculosis in each country from the beginning of its system of registration.

Tuberculosis is the most important of all diseases, from the standpoint of sanitary restriction, among the highly civilized peoples of the temperate zone, and it is therefore surprising that there should not be readily accessible and thoroughly comparable statistics of its mortality. Yet in the Sixty-ninth Annual Report of the Registrar-General of England, published in 1908, under the head of International Vital Statistics, he is compelled to say of tuberculosis and cancer:

Pulmonary Tuberculosis and Cancer.—Disregarding *possible variations* in the methods of classification of the deaths, as well as the age and sex constitution of the populations, it is possible to make a rough comparison among several countries, as regards the relative incidence of mortality from these two important diseases. *Several States* (countries) *were unable to furnish complete returns of mortality from phthisis* or from cancer. For example, no comparison can be instituted as regards France, Denmark, Sweden, or Bulgaria, as the statistics of those countries are limited to towns only; again in Hungary and in Prussia the returns comprise deaths from all forms of tuberculosis, while in Italy deaths from general tuberculosis are included under pulmonary tuberculosis.

I have indicated by italics in the above text some of the astonishing statements in regard to the imperfection of the official national statistics concerning this most important disease. There were only ten European countries that furnished comparable returns. The Registrar-General summarizes the indications derived from the statistics available as follows: "In England and Wales, in Scotland, and in five European countries, viz., the German Empire, the Netherlands, Belgium, Norway, and Italy, a diminution in the death-rate from this disease has taken place in recent years; on the other hand, the death-rate in the Austrian Empire, in Servia, and in Ireland is abnormally high, and shows no general tendency to decrease." Yet in the pamphlet on "The Struggle against Tuberculosis in Sweden," issued by the Swedish Government for the International Congress on Tuberculosis at Washington,

1908 (page 28), it is stated that: "The general death-rate here in Sweden, as in other civilized countries, has enormously decreased during the last decade. . . . Meanwhile the mortality due to consumption has everywhere remained almost stationary, our own country not excepted, as the accompanying curve diagram shows."

It is surely of the utmost importance to those engaged in the warfare against tuberculosis to know, with all of the certainty of correct official statistics from all of the progressive countries of the world, whether tuberculosis is increasing or not, and the fact that authoritative statements in this connection are based upon limited sources of information (only ten countries in Europe!) or may be entirely contradictory, shows the pressing necessity for more complete and more thoroughly comparable international statistics of causes of death. The United States is very backward in registration matters, but it would seem that the other countries of the world are not very far in advance as regards the practical utilization of the data collected.

The reason for this failure in the comparability of international statistics of causes of death lies in the lack of agreement, until very recent times, among the nations of the world, as to the adoption of an international system of classification. Until 1900 all countries employed their individual systems, among which are many and perplexing differences, although the most eminent statisticians, and especially Dr. William Farr, of England, labored unceasingly in the early days of official registration of vital statistics to promote international coöperation and agreement. In 1900 an International Commission was held at Paris upon the invitation of the French government, and in pursuance of a recommendation originally made by the American Public Health Association and approved by the International Statistical Institute, in which delegates of twenty-six countries participated. The result of the labors of this Commission is known as the International Classification of Diseases and Causes of Death, and is now in actual use, according to a statement lately received from Dr. Jacques Bertillon, the secretary-general, in twenty-two countries of the world. It was adopted by the United Stated Census among the very first (statistics of the census year ending in 1900), and the last country to be added was the new commonwealth of Australia, where it is now in satisfactory use. The second decennial revision will be held at Paris next year (1909), having been advanced a year at the request of the United States, so that the results will be ready in time for use in connection with the census of 1910. Special committees appointed by the American Medical Association and the American Public Health Association are now coöperating with the medical services of the government (army, navy, public health, and marine hospital service) and with the Bureau of the Census in preparing suggestions for the improvement of the system, to the end that the revised classification which will soon go into use for the

next ten years may be of the highest scientific value and give the most useful information for those engaged in public health work, and especially to the workers against tuberculosis. Upon the thoroughness with which this work of revision is done at the present time largely depends the value of our statistical data for the next ten years, and it is surely a matter of the most pressing moment to all members of this Congress on Tuberculosis that the classification of the different forms of tuberculosis shall be in the best and most convenient manner for their use throughout the world. It is so important that I believe that a special committee of the Congress ought to be constituted for this purpose, and also with reference to the obtaining of any necessary changes in the systems in use in countries that have not adopted the international classification, so that we may have at least some thoroughly comparable international statistics of tuberculosis from all countries. I therefore present the following draft of resolutions:

B. Necessity for Uniform Statistical Classification and Accurate Reporting of Tuberculosis.

1. All statistics of tuberculosis, whether national, State, or municipal, and also statistics of hospitals and institutions, should be thoroughly comparable, both for the statistics of sickness and of deaths. Physicians should confine themselves to the accepted terms of the standard classification, and doubtful reports ("possibly tuberculous") should be systematically investigated by sanitary and registration authorities. A penalty should be provided for false statements intended to conceal the presence of tuberculosis, the making of which should be considered a matter of professional and personal dishonor; and all legal requirements relative to insurance and other matters tending to falsification of official statements of causes of illness or death should be held contrary to public policy.

2. The Congress on Tuberculosis should endeavor to secure the adoption in all statistical classifications of a standard classification of tuberculosis, and for this purpose should appoint a committee to consider the various forms now in use and to present its recommendations to the International Commission for the Revision of the International Classification of Causes of Death and Sickness, which meets in 1909, and also to the registration authorities of the governments employing other systems of classification, to the end that as soon as possible a uniform classification of tuberculosis may be used by all of the countries of the world.

Colección de Estadisticas de Tuberculosis.—(Wilbur.)

El registro de los enfermos y muertos de tuberculosis es un paso esencial en la inspección de la enfermedad por el Estado y el municipio. Estos datos son de valor para un administrador de sanidad, desde el punto de la estadística, y como una guída para la institución de las medidas pro-

filácticas. No debe atenerse incompletas estadísticas, que una incompleta es peor que inutil. El registro exacto de los casos es de mucho mayor valor que el registro de las muertes, pero es extremadamente dificil de realizar, y no puede esperarse cuando las muertes mismas no se recojen. El Congreso de Tuberculosis debe recomendar organizados esfuerzos para su recolección y esto debe ser apoyado por sus miembros el los Estados Unidos, y se ofrece una resolución á este efecto. Se urge el apoyo de la Clasificación Internacionas de las enfermedades para asegurar estadísiticas comparables. Se aboga por la formación de un modelo de clasificación de tuberculosis por una comisión que presentaría sus recomendaciones á la comisión Internacional para la Revisión de la Clasificación de las causas de enfermedad y muerte, y se presenta una resolución á este fin. Los médicos profesionales deben aducarse para que presenten, y el pueblo para que pida la verdad de los casos de tuberculosis, y consecuentemente el dejar de informar su existencia debe considerarse como un acto deshonroso profesional.

Collection de statistiques de la tuberculose.—(WILBUR.)

La declaration des cas de maladies et de morts par la tuberculose est un point essentiel pour le contrôle de la maladie par l'Etat et la municipalité. Ces chiffres sont d'une grande valeur pour un administrateur des Bureaux de Santé au point de vue statistique et comme guide pour prendre des mesures prophylactiques. Les statistiques toutefois doivent être complètes, car les statistiques imparfaites sont non seulement inutiles mais nuisibles. Une declaration exacte des cas est de bien plus grande valeur que l'enregistrement des morts, mais il est très difficile d'obtenir le premier et on ne peut même pas s'attentre à l'obtenir, quand les cas de morts eux-mêmes ne sont pas déclarés. Le Congrès de la Tuberculose devrait recommander de faire des efforts organisés pour les recueillir, et les membres de ce Congrès aux États-Unis devraient supporter ces efforts. L'auteur présente ici une résolution à cet effet. Il demande aussi du Congrès d'approuver la classification internationale des maladies pour obtenir des statistiques comparable. Il est en faveur de la nomination d'un comité pour formuler une classification modèle de la tuberculose, et ce comité devrait présenter ses recommandations à la Commission Internationale pour la Révision de la Classification Internationale des causes de maladie et de mort; une résolution est présentée ici à cet effet. La profession médicale devrait apprendre la necessité de dire et le public la nécessité de demander la vérité sur les cas de tuberculose qui se présentent, et par suite l'omission d'en déclarer un cas devrait être considérée un acte professional déshonorant.

Sammlung von Statistiken über Tuberkulose.—(WILBUR.)

Die Registrirung der Erkrankungen und Todesfälle von Tuberkulose ist ein inhaltsreicher Schritt in der staatlichen und städtischen Kontrolle der Krankheit. Diese Daten sind von Wert für einen Sanitätsbeamten von einem statistischen Standpunkte und als Führer in der Einrichtung prophylaktischer Massnahmen. Irgend etwas weniger als vollständige Statistiken sollte nicht angestrebt werden, da unvollständige schlechter noch als nutzlos wären. Genaue Registrirung der Erkrankungen ist von viel grösserem Werte als die der Todesfälle, aber ausserordentlich schwer durchzuführen, und kann nicht erwartet werden, wenn die Todesfälle selbst nicht verzeichnet werden. Gesammt-Anstrengungen, sie zu sammeln, sollten durch den Tuberkulose-Kongress anempfohlen und durch seine Mitglieder in den Vereinigten Staaten unterstützt werden, und diesem Zwecke entsprechend ist ein Vorschlag gemacht worden.

Eine Zustimmung zur internationalen Classification der Krankheiten durch den Kongress wird verlangt, um vergleichbare Statistiken zu sichern. Die Formulirung einer massgebenden Classification der Tuberkulose durch ein Comite ist befürwortet, welche ihre Vorschläge der Internationalen Commission zur Classifizirung der Krankheiten und Todesfälle unterbreiten sollte und eine Resolution zu diesem Zwecke ist vorgelegt. Die Angehörigen des ärztlichen Berufes sollten ihre Aufmerksamkeit dahin richten, die Wahrheit in Bezug auf das Vorkommen der Tuberkulose zu gestehen und das Volk sollte diese Wahrheit verlangen; infolgedessen sollte ein Unterlassen, ihr Vorkommen zu berichten, als eine unehrenhafte berufliche Handlung angesehen werden.

CONSUMPTION AND VITAL STATISTICS.

By Dr. Chas. A. Hodgetts,
Health Officer, Ontario, Canada.

The selection of the title of this brief paper may seem somewhat out of place, but the word "consumption" has been chosen in preference to that of "tuberculosis" for a purpose which will be apparent.

The application of statistics to tuberculosis must of necessity be largely confined to its mortality until such time as legislatures require a confidential notification of each and every case of the disease to health authorities, and then it is very questionable if anything but approximate morbidity figures will be obtainable, even if a considerable statutory fee is provided as compensation for professional information which primarily is the property of the patient and to acquire which the State or municipality should give compensation.

In the search of mortality statistics of tuberculosis in Ontario, where the registration of vital statistics has been in operation since 1869, one interesting feature has been brought out—which is the subject of this paper.

Naturally, as statisticians, we must rely upon the medical practitioner for the information as to the exact cause of death in each and every instance. It is our duty simply to collate this medical data, which are of value as they are accurate; and any error as regards their application must therefore rest with the individual creator of each and every notice of death. In other words, if statistics lie as to the mortality of "consumption," the sin is not one of the statistician, but of those who furnish the certificates of death, viz., the members of the medical profession.

That such is undoubtedly the case is not set forth as an axiom by the writer. The reader is left to make his own deductions after a consideration of the mortality returns of the Province of Ontario for a period of thirty-five years.

In Table I will be found the census population, total number of deaths from tuberculosis in all forms, and percentage increase or decrease from year to year. In Table II are shown the total number of deaths from all causes for each of the years from 1876 to 1906 inclusive, census population for the decennial periods, together with annual death-rate per 1000 of population.

In the year 1876 the mortality returns were more nearly accurate than in

preceding years, and in the same year the reported deaths from tuberculosis were 2315—a figure approaching that of the yearly average for the next twenty years (1876 to 1895 inclusive), viz., 2247—and during these two decades it will be noticed the variations and fluctuations were only such as might naturally be expected.

In the year 1896 there evidently began an upward tendency in the deaths from all causes, which has continued year by year ever since (Table II), although it will be noticed by reference to the census population that the increase has been nothing abnormal—indeed, not what it should have been in such a Province as Ontario, into which there has been an influx of immigrant population. It will be noted that with the increase in total mortality there was a corresponding increase in the mortality from tuberculosis for the four years 1897 to 1900, inclusive; but in 1901 and 1902 the decline in the deaths from tuberculosis was very noticeable—790 in two years—being more marked than at any other time in the periods given, the deaths from tuberculosis in the latter year being only 27 in excess of those for the year 1883, at which time the population was a quarter of a million less than in 1902.

Since that year the total number of deaths from all causes has shown a yearly increase, the maximum being in the year 1906, when the total was 32,782. While the deaths from tuberculosis show a slight yearly increase for the corresponding period, they have not reached the figures of 1900, when the maximum of 3484 occurred.

It is quite evident the people are dying in increasing numbers, but those reported under the head of tuberculosis are marked lower than in the years 1895 to 1900, and, reasoning from the mortality statistics, Ontario should be congratulated upon the marked improvement in the apparently rapid decline of consumption as a cause of mortality.

The yearly percentage increase or decrease of the deaths from tuberculosis is shown in Table I. An analysis shows that the maximum yearly increase was 11.3 per cent. in the year 1881, and the maximum decrease 17.9 per cent. in the year 1902.

A comparison of the Ontario returns with those of the Registrar-General of England and Wales as found in the Annual Report, 1903, is most interesting. Here the maximum increase was 6.4 per cent. in the year 1890, and the maximum decrease 7.04 per cent. in the year 1896. (See Table III.)

While in Scotland, quoting from the Registrar-General's Report, 1903, the maximum increase was 9.8 per cent. in the year 1895, and the maximum decrease 9.3 per cent. in the year 1896 in the case of tuberculosis, while for phthisis, which is here tabulated separately, the maximum increase was 8.1 per cent. in 1895 and the maximum decrease 10.3 in 1896. (See Table IV.)

Judging by the standard of these two countries, it may safely be taken that the variation in tuberculosis mortality is within the ranges indicated

in Tables III and IV, and at no time has it paralleled that of Ontario in respect to so sudden and so marked a decline as is shown in Table II.

If tuberculosis were of the group of communicable diseases in which we look for exacerbations in the mortality rate due to increased mortality or marked virulence in some outbreak as compared with others, then we would expect to find just such a condition as is shown to have been the case here. It would appear that, with the exceptions here noted, the fluctuations in mortality have a fairly constant range.

To fully account for this sudden decline may indeed be difficult, and the following remarks are offered simply in part as an explanation.

About the year 1895 greater attention was drawn to the subject of the white plague in Ontario, and all classes became interested. The medical profession showed greater accuracy in the diagnosis of cases, and, as a result, death returns were more correct. The truth prevailed as it was acceptable. Then followed a reaction.

The bearing it had upon those seeking life insurance was soon felt, for family history was carefully considered. The public in part came to look upon the consumptive as a modern leper, only fit for segregation in an institution. Consumption, the "white plague," was the modern "bloody hand" upon the family escutcheon. And the sufferer therefrom found it difficult to secure employment in factory, office, or workshop, and such often being wage-earners, their families suffered in consequence. Now the truth was not acceptable; and, as a consequence, a marked decrease in the mortality from tuberculosis in the years 1901 and 1902 occurred, notwithstanding the continued yearly increase in the deaths from all causes.

By reference to the chart it will be observed that a slight reaction is to be noted for the years 1903 and 1906 inclusive, showing a gradual rise in the mortality of tuberculosis. It is quite evident that some controlling influence prevents the true effects of this disease being known as a factor in our mortality statistics. Certain it is the people die at a higher rate in Ontario year by year (Table I).

In looking for an improvement in the mortality statistics as far as the province to which I refer is concerned, it requires a higher and better education in all that appertains to consumption and all forms of tuberculosis, for when once the public and the medical profession are fully seized of the truths respecting cause, spread, control, and cure, and all are possessed with an honest desire to assist in its suppression—then, and only then, will mortality statistics in regard thereto be accurate.

There must be no juggling of figures in the interest of any particular institution or class of work instituted for the care and treatment of consumptives, for there is no one specific, but there are many ways, opportunities, and means by which alone the desired goal of suppression can be reached.

TABLE I.

Showing the Yearly Percentage, Increase and Decrease in Deaths from Tuberculosis in the Province of Ontario for the Years 1876–1906 Inclusive.

Year.	Deaths.	Increase.	Decrease.	Year.	Deaths.	Increase.	Decrease.
1876	2315	..	..	1891	2379	..	4.9
1877	2188	..	5.9	1892	2592	8.9	..
1878	2053	..	6.1	1893	2552	..	1.5
1879	2104	2.4	..	1894	2379	..	6.7
1880	2197	4.4	..	1895	2472	3.9	..
1881	2446	11.3	..	1896	2922	1.8	..
1882	2591	6.4	..	1897	3164	8.2	..
1883	2667	2.9	..	1898	3291	4.01	..
1884	2506	..	6.0	1899	3405	3.4	..
1885	2499	..	0.27	1900	3484	2.3	..
1886	2573	2.9	..	1901	3284	..	5.8
1887	2556	..	0.66	1902	2694	..	17.9
1888	2551	..	0.19	1903	2723	1.1	..
1889	2417	..	5.2	1904	2877	5.6	..
1890	2503	3.5	..	1905	2667	..	7.3
				1906	2911	9.1	..

Population for Census Years.

1881	1,923,610
1891	2,122,716
1901	2,184,144

TABLE II.

Showing the Number of Deaths from all Causes with Population at Census Periods in the Province of Ontario; also Death-rate per 1000 of Population for the Years 1876–1906 Inclusive.

Year.	Census Population.	Number.	Per Cent.	Year.	Census Population.	Number.	Per Cent.
1876	..	18,623	10.0	1892	..	23,120	10.7
1877	..	20,053	11.1	1893	..	22,903	10.6
1878	..	17,808	9.3	1894	..	22,538	10.3
1879	..	17,958	9.6	1895	..	22,461	10.1
1880	..	19,802	15.0	1896	..	24,857	10.9
1881	1,923,228	22,821	11.8	1897	..	27,633	12.2
1882	..	21,800	11.3	1898	..	26,370	11.5
1883	..	21,049	10.9	1899	..	28,607	12.4
1884	..	21,702	11.2	1900	..	29,494	12.6
1885	..	22,105	11.4	1901	2,182 947	29,608	13.6
1886	..	23,184	11.0	1902	..	27,864	12.6
1887	..	23,414	11.5	1903	..	29,664	13.4
1888	..	23,734	11.0	1904	..	31,290	14.1
1889	..	23,329	10.7	1905	..	31,371	14.2
1890	..	24,013	11.1	1906	..	32,782	14.8
1891	2,114,321	21,558	10.2				

TABLE III.

Deaths in England and Wales from Tuberculosis in All Forms, Showing Increase and Decrease Per Cent. (Sixty-sixth Annual Report, 1903.)

Year.	Deaths.	Increase.	Decrease.	Year.	Deaths.	Increase.	Decrease.
1884	69,482	..	..	1894	59,363	..	6.9
1885	66,221	..	4.6	1895	62,777	5.7	..
1886	68,148	2.9	..	1896	58,357	..	7.04
1887	63,596	..	6.6	1897	59,995	2.8	..
1888	62,762	..	1.3	1898	60,192	0.3	..
1889	64,305	2.4	..	1899	60,720	0.87	..
1890	68,399	6.4	..	1900	61,356	1.05	..
1891	66,985	..	2.06	1901	58,930	..	3.9
1892	63,093	..	5.8	1902	57,396	..	2.6
1893	63,799	1.1	..	1903	58,107	1.2	..

TABLE IV.

Showing the Yearly Percentage, Increase and Decrease in Deaths from Tuberculosis and Phthisis in Scotland for the Years 1876 to 1903 Inclusive.

Year.	Tuberculosis, Deaths.	Increase.	Decrease.	Phthisis, Deaths.	Increase.	Decrease.
1876	12,219	..	..	8,491	..	..
1877	12,193	..	0.21	8,342	..	1.7
1878	12,567	3.04	..	8,445	1.2	..
1879	12,098	..	3.4	8,336	..	1.2
1880	11,989	..	0.8	8,074	..	3.1
1881	11,275	..	5.9	7,739	..	4.1
1882	11,608	2.8	..	8,012	3.7	..
1883	11,092	..	4.4	8,401	4.8	..
1884	10,795	..	2.6	7,915	..	5.7
1885	10,724	..	0.65	7,922	0.08	..
1886	10,942	2.3	..	7,959	0.46	..
1887	10,275	..	6.09	7,418	..	6.7
1888	9,725	..	5.3	7,044	..	5.04
1889	9,722	..	0.03	7 098	0.7	..
1890	10,294	5.8	..	7,660	7.8	..
1891	10,141	..	1.4	7,361	..	3.9
1892	9,318	..	8.1	6,765	..	8.09
1893	9,801	5.1	..	6,921	2.3	..
1894	9,729	..	0.73	7,108	2.7	..
1895	10,688	9.8	..	7,688	8.1	..
1896	9,685	..	9.3	6,893	..	10.3
1897	10,085	4.1	..	7,200	4.4	..
1898	10,140	0.54	..	7,090	..	1.52
1899	10,497	3.52	..	7,275	2.6	..
1900	10,366	1.53	..	7,299	0.32	..
1901	9,911	..	4.1	6,776	..	7.1
1902	9,536	..	3.17	6,572	..	3.0
1903	9,726	1.9	..	6,630	0.88	..

STATISTICAL DATA RELATIVE TO TUBERCULOSIS IN MEXICO.

By Dr. Eduardo Liceaga,
Mexico.

Instead of wearying my hearers with a reading of a dry statement of numbers, I will ask them to look at the diagram which I present, covering a period of thirty-nine years, from 1869 to 1907, inclusive.

From that diagram it can be seen that the number of deaths from tuberculosis reached a high figure in the years 1893 and 1901, that afterward there was a pronounced decrease in those numbers until 1904, and that during the last four years the figures have not varied to any great extent.

In a general way the curve follows at a distance the variations in the number of deaths from diseases of all kinds, without one curve exactly following the other, because we have had epidemics in typhus in 1876–1877, 1886–1887, 1890, 1893, and 1901, in which years the general mortality rapidly increased through the ravages of those epidemics.

Another fact to be noted is that the increase in the number of deaths from tuberculosis is in proportion to the following three factors:

First: The progressive increase in the population of the city:

Second: The increase in the number of individuals who come to the capital city from all parts of the republic, and especially from the coasts as well as foreign countries, especially from the United States, on account of the increasing prosperity during the last thirty years, and—

Third: The number of consumptives from both coasts who come to seek relief in Mexico City.

These three factors explain the total increase in the mortality from tuberculosis.

If we come down to the localization of tuberculosis in the different organs, we find that in the ten years from 1898 to 1907 the number of deaths caused by pulmonary tuberculosis shows high figures as compared with the others. We also find a decline of the disease during the last five years, which is probably due to the promptness with which the diagnosis is now made, and the better attendance given to incipient consumptives.

A study of the other columns shows us that, in order of frequency, but very far from pulmonary tuberculosis, comes abdominal tuberculosis, which

carries off a great number of children. In descending order we have general tuberculosis, followed by meningeal tuberculosis, laryngeal tuberculosis, and, lastly, Pott's disease and white tumors.

The figures serve to establish a comparison with other cities, and to show the conditions with respect to tuberculosis in Mexico, as measured by the general mortality, that is to say, the relation which exists between the deaths from tuberculosis and those registered of all other kinds of diseases. This proportion, during the period of thirty-nine years under study, is 8.42, a lower proportion than that of most cities with a population of over 400,000 inhabitants, in spite of the accidental causes which have led a great number of consumptives to the capital of the Mexican republic from the rest of the country and abroad.

But if we take the number of deaths by themselves during the last five years, we reach the following figures:

Number of deaths from diseases of all kinds	92,718
Deaths from tuberculous diseases	8,063
Proportion	8.69

If we compare this proportion with that which obtains in the principal cities of the world, we will still find a difference in favor of our climate, with respect to those places.

The following table shows the relation between the general death-rate and that caused by pulmonary tuberculosis, in the year 1907, in the cities named, according to a table compiled by the General Board of Municipal Statistics of the city of Buenos Aires:

Paris	21.35	Munich	12.68
Prague	20.04	Roubaix	12.62
Gothenburg	17.24	Luxemburg	12.60
Lyons	16.88	Dublin	12.52
Vienna	16.73	Saint Petersburg	12.17
Havre	16.72	Belfast	11.77
Christiania	16.45	Zurich	11.67
Lille	15.81	Copenhagen	11.57
Geneva	15.44	Venice	11.49
Breslau	15.29	New York	11.40
Stockholm	15.28	Odessa	11.39
Nuremberg	14.51	Buenos Aires	11.36
Berlin	14.23	Amsterdam	10.90
Frankfurt-am-Main	13.94	London	9.66
Dresden	13.84	Moscow	9.46
Bern	13.76	Madrid	9.43
Leipsic	13.69	Basel	9.30
Hamburg	12.77	Cologne	8.65

DISCUSSION.

Dr. J. W. Irwin (Philadelphia): I congratulate Dr. Wilbur on his paper, which is sure to help us in registration, if the people are thoroughly acquainted with its importance. The physician frequently strikes snags in trying to

report cases, but, as Dr. Wilbur has said, because of not having registration laws he neglects to report a case of tuberculosis, and also fails to report it as a cause of death on the certificate of death. One thing in particular has been called to my attention. In the case of policies issued by industrial insurance companies and societies, a plan has been that the policy which is issued to the poorest people contains a small clause, usually printed in very fine type, to the effect that, in case of death from tuberculosis, only one-half or one-third of the amount of insurance will be paid. The result is when poor people die of tuberculosis, relatives or friends see the clause relating to tuberculosis, and frequently request the physician to make out the certificate from some other disease; which is almost equivalent to saying, "I will not get the insurance if you issue the certificate as due to tuberculosis." If the insurance companies can be made to issue a policy without such clause, or with the clause printed in the same size type as the rest of the policy, we would probably not have so many requests made to give another cause of death.

Another reason is the fact that many times the physician is afraid to tell the patient that he is tuberculous, for fear that, because of such knowledge, he will die very rapidly. I think if we will insist upon our legislatures enacting compulsory registration laws, we will find the amount of tuberculosis larger from a statistical standpoint. Many cases in Philadelphia have been registered under other names.

Dr. E. C. Levy (Richmond): To any one who has noted this exhibition and attended the section meetings it must be a matter of surprise that the very fundamental thing of vital statistics appears on the program in only two papers. In looking at the exhibits of microscopical and bacteriological sections and the pathological exhibits, if we had the feeling that the instruments were incomplete and unreliable, they would have very little significance for us; and yet all of our figures, all of our statistics, certainly in the United States, must be so labeled. Until we get accurate registration throughout the United States, all deductions must be more or less unreliable. The one point brought out by Dr. Irwin,—the last,—that insurance companies evade the payment of insurance when death is due to tuberculosis, and the falsification of death returns, has interested me personally for two or three years. The subject was brought up at Atlantic City last year at the meeting of the American Public Health Association, and for those members who have encountered the same difficulty it may perhaps be interesting to know what the city of Norfolk, Va., has recently done. The insurance policy applies especially to the negro, for the reason that every negro has a little industrial policy—enough to pay for burial. The Norfolk Anti-Tuberculosis League has taken up this matter. They have an attorney who has volunteered his services, and they have let me know that this attorney is soon ready to con-

test the action of any insurance company which refuses to pay a policy because the decedent dies of tuberculosis. That has been done, published, and up to date there has been no request for the services of the attorney. In other words, it is believed that the insurance companies are paying these policies, and Dr. Grandy assures me that the action taken will undoubtedly do much to lessen false returns to insurance companies. Of course, the next step is to have the physician, who has heretofore been so weak as to yield to the importunities of the family, now understand that there is no longer any necessity for such falsification, and that they are not thereby rendering any aid to the family.

I wish to commend, although it seems it needs no commendation, the work of Dr. Wilbur. All of us in these United States feel that when we send in our returns to the Census Bureau they are worked up in the best fashion. It gives me great pleasure, in closing, to move that this Section recommend the adoption of Dr. Wilbur's resolutions.

(Action was taken that the resolutions referred to will be submitted to the Committee on Resolutions.)

Dr. W. R. Batt (Harrisburg, Pa.): To those of us who have had the privilege of listening to the papers presented in this particular Section one fact seems to have been clearly established, namely, that the complete and accurate registration of both deaths and living cases is absolutely essential to any successful campaign against tuberculosis. This fact has been so clearly expressed, not only in this Section, but in every other Section of this Congress, wherever the control and restriction of tuberculosis has been discussed, that it would seem to admit of no further argument. With such a unanimous expression of opinion, it ought to appear reasonable, therefore, that the registration of tuberculosis should be accomplished without any serious difficulty, and be complete and accurate in every detail. The experience of almost every State and municipal office in which exhaustive registration has been attempted, shows that in practice the actual reverse is unfortunately too true, and that the registration of tuberculosis is one of the most difficult problems with which State or municipal governments are compelled to deal.

When we inquire into the nature of these difficulties, there appear to be just two conditions responsible for our failures:

First, the indifference and neglect upon the part of the medical men to report cases occurring in their practice.

Second, the reluctance of State and municipal authorities to enforce these reports either by invoking the penalties of laws already enacted or which are entirely within their power to enact.

The first condition, in view of the pronounced attitude of the medical profession, is simply an evidence that physicians frequently in matters of

public concern neither practise what they preach nor are willing to be judged by the standards which they publicly advocate. The second condition is due largely to an outgrowth of sentiment which finds its origin in the first condition.

The plea has been made that education is absolutely essential to a successful campaign against tuberculosis—education of the physician, education of the people, and education. No one has questioned the wisdom of this proclamation. Its necessity has been thoroughly recognized, and the hand of authority has been stayed in deference to it. It is, however, twenty-five years since the direct cause of tuberculosis has been known to the world. A quarter of a century has been devoted to education. May we not, at this time, reasonably ask ourselves as individuals, as municipalities, as States, and as nations, if the majority of those people who are capable of education or who are willing to be educated have not exhausted their opportunity and their privileges? We have wasted no such time with other diseases, but years have elapsed since Eberth isolated the bacillus of typhoid fever, and to-day the compulsory notification of typhoid by health authorities is a recognized necessity and is more or less rigidly enforced. Why should tuberculosis, whose ravages are infinitely greater, be treated with less concern?

May we not at this time, beyond a question of reasonable doubt, require that physicians, even to the point of compulsion by invoking legal penalties, be required to register all cases of tuberculosis? and may we not equally as well insist that the unrestricted liberty of a tuberculous person be made dependent upon the observance, habits, or customs which will not endanger the lives of others?

Figuratively speaking, in deference to public sentiment we have handled tuberculosis for a quarter of a century, so far as legal authority is concerned, with gloves on; are we not ready to take off at least one glove? For if the experience of the past may be accepted as a guide, this great fight will sooner or later have to be made with naked hands, if we ever hope to be victorious.

Dr. Theodore Altschul (Prague), in discussing Dr. Wilbur's paper, pointed out the difficulties encountered in compulsory notification, and the absolute necessity of a system of compulsory notification for the collection of statistics. Untrue statistics are worse than useless. As regards a satisfactory system for the collection of statistics of tuberculosis, he has taken occasion to closely examine the Bertillon system, and finds it insufficient from the medical standpoint, largely because of the fact that medical statistics can only be properly collected by medical men. He thought that a committee should, therefore, be composed of two parts—first, of a medical group to collect and study the statistics from a medical standpoint, and, second, a group of pure statisticians, both groups working separately, but combining their results. He believes that it would be one of the greatest advances.

THE NEED OF FAMILY HISTORIES FOR THE STUDY OF TUBERCULOSIS.

By Charles V. Chapin,
Providence, R. I.

For twenty years the writer has been keeping what may be called family records of cases of diphtheria and scarlet fever reported in Providence. An enumeration is made of all the members of the family and of other families in the house, with ages and occupation, and previous attacks of the disease, and various facts are noted as to exposure and precautions taken. These records have proved of the utmost value in throwing light on many problems connected with the epidemiology of these diseases. Much has been learned about the period of incubation, and the degree of contagiousness in the family for different ages, and for the sexes, has been well worked out. The age and sex liability to contract the disease outside the family is shown to be different from the liability in the family. The advantages of isolation in the family are indicated, as is also the value of the removal of the patient to the hospital, or the removal of the well members of the family from the home. The danger from patients returning from the hospital too soon, or from the neglect of disinfection, can be clearly shown. So, too, can the danger of the extension of the disease to other families in the house. Much light has been thrown upon the question of modes of infection, whether by the air, by fomites, by food, or by contact.

The value of these family records suggested that similar records of tuberculosis would be of equal value, and when the registration of this disease in Providence was provided for, the attempt was made to secure such family histories, but was not successful. It is very much more difficult to obtain histories for tuberculosis than for diseases like diphtheria, scarlet fever, smallpox, and typhoid fever. The latter are acute, the period of incubation or latency is usually short, and the whole episode of family infection is closed in a few weeks, or at most in a few months. But tuberculosis is a chronic disease, and the period of incubation or latency may, so far as is known, be years—perhaps many years. It is difficult to determine which members of the family have had the disease or when they became sick, or where they were at the time. In the light of present knowledge a family history cannot be considered closed until every member of the family is dead.

Even then it cannot be certain that death did not occur during the latent period. The difficulties are, however, for many cases not insuperable, and it is of the highest importance that they should be overcome, and that a serious effort should be made to secure such histories, and to secure an extensive series of them.

Some of the most important problems connected with the study of tuberculosis can hardly be solved by animal experiment. Questions relating to individual susceptibility, to inheritance, to the effect of environment, and to the avenues of infection often involve such minute degrees of difference that deductions from animal experiments cannot with safety be applied to human beings. Laboratory work has yielded wonderful results in the past; indeed, it brought order out of chaos, and established the study of tuberculosis on a sure foundation. Laboratory work will continue to yield large returns in the future, but in tuberculosis, as in other infectious diseases, the study of the epidemiological together with the bacteriological aspect of the subject is essential. In such studies personal impressions and general observations, not based on accurate data, are to be distrusted. Epidemiology is a statistical study, and we cannot hope to extend our knowledge without sufficient statistical data. Mortality statistics of tuberculosis alone are valuable, and have done much to increase our knowledge, but a study of the disease in the family by means of carefully collected family histories ought to do more, and we may fairly hope will help to solve some of the important problems now under discussion.

For instance, there is no accord among investigators as to the relative importance of susceptibility and infection in human tuberculosis. No infectious disease can develop without the presence of its specific microorganism, and no germ can grow unless it is in a favorable medium. If all persons are equally susceptible to tuberculosis, then the question of infection only is of practical importance in the etiology of the disease. If, on the other hand, there are great differences in the degree of susceptibility, and many persons are practically immune, and at the same time infection is general and wide-spread, and impossible to avoid, exposure to infection is of little practical importance in the warfare against the disease. The bacteriologists have not solved the problem and the clinicians are not in accord. More extended and careful statistical investigation ought to be of great practical value.

It is generally admitted that tuberculosis is a disease with exceptional incidence on certain families. That is, given one case of the disease in a family, other cases are more likely to occur than was the first case, or than is a case to develop in any other free family. But exactly how great this family liability is we do not know, owing to lack of sufficient data. It is important to have a great volume of facts, and to have them classified according to race, social conditions, etc. Only complete family histories can furnish such data.

Given, for instance, a woman of thirty, married ten years, and dying of consumption, after four years of sickness we ought to be able to know with a fair degree of accuracy what the chance is that her husband, aged thirty-five, and her child, aged four, will die of tuberculosis, and at what age that event will happen. I know of no collection of facts at the present time sufficient to permit such a calculation.

Admitting an excess of this disease in certain families, we are at present uncertain whether hereditary susceptibilty or infection in the family is its principal cause. But a study of family histories ought to throw great light on this point. Husband and wife are not usually related by blood, and perhaps there may be other persons in the family environment who are of different stock. A study of the incidence of the disease on this alien stock ought to furnish evidence as to the relative importance of susceptibility and infection. Yet few attempts have been made to study the problem in this way. Clinicians tell us that the infection from husband to wife, and vice versâ, is very common, but when pressed for facts derived from full family histories, they can rarely furnish them. Moreover, the mere statement that marital infection has occurred in a certain number of instances means little in itself. The age, duration of disease, and interval between attacks must all be considered, and considered in relation to the incidence of the disease on all married persons of the same ages living under similar conditions. Longstaff many years ago undertook such a critical study of the problem, but his data were too few and his necessary assumptions too numerous to render his conclusions decisive. Recently Nevin and Karl Pearson, from a study of data derived largely from the same locality, drew directly opposite inferences. At present it can be said that we have no conclusive evidence as to whether husbands or wives of tuberculous mates are especially prone to the disease, and we have no data sufficient for a really critical study of the problem. Yet it is highly probable that this important problem could be satisfactorily solved if we had a sufficient number of family histories.

Another question of great importance is, How soon after infection is the disease likely to become manifest? The statistical study of the latent period in tuberculosis is by no means easy, but the examination of a large number of family histories would undoubtedly throw much light on the question, as similar studies in scarlet fever, diphtheria, and typhoid fever have on the incubation of those diseases.

It is almost universally assumed that infection of the house is an important factor in the extension of tuberculosis, and the existence of "lung blocks" in various cities has been used as an unanswerable argument. But without denying the fact of house infection, it may be affirmed, without fear of contradiction, that no statistical evidence has thus far been presented of the alleged fact. It might very well be that if the family histories of all the cases

in these lung blocks should be carefully studied, the supposed evidence in support of the theory would fall to the ground.

For some years great efforts have been made to check tuberculosis by teaching people to avoid infection. Boards of health and antituberculosis leagues have been giving directions for the care of sputum, and have been inculcating habits of personal cleanliness. It is fair to ask, what evidence have we that any good has resulted? The decline in the tuberculosis death-rate is usually offered in evidence, but the recklessness of assuming that this decline is due to the preventive measures that have been undertaken, or to any group of these measures, must be apparent to all. A study of the histories of families where preventive measures have been carried out, in comparison with those of families where they have not, ought to furnish good evidence for or against the value of these measures, and it is only by such studies that we can acquire such knowledge.

There are many other problems which can only be satisfactorily studied by means of family histories. Karl Pearson* has recently published a very instructive and suggestive study of the family histories of cases of pulmonary tuberculosis. While some of his conclusions may be criticized, and while, as he admits, his data were far too few, he has well indicated some of the lines along which such investigations should be made. Indeed, it was his article which suggested this paper.

I do not find that in this country the collection of accurate and complete family histories has received much attention, and certainly little critical study has been bestowed upon them. Health officials, sanatorium officers, and clinicians are interested chiefly, if not exclusively, in the patient. The epidemiologist should bestow as much attention upon every member of the family or household as upon the patient.

It is no easy matter to initiate and carry on collective investigations, yet some sort of collective work along the lines here indicated seems desirable. No one person can collect sufficient data, and data from various places and relating to various classes are needed. But the facts should be comparable, and uniform schedules should be employed. I wrote to Professor Pearson for a copy of the schedule used by him, but he declined to send me one, on the ground that the many Americans to whom he had given assistance invariably failed to acknowledge it. Correspondence with leading American sanatoriums, and with health officials and practising physicians, has failed to discover any very definite plan for recording family histories in the sense in which the term is here used. The Phipps Institute schedule makes more provision for this than do others that I have seen, at least in this country. The Institute has, moreover, attempted to make use of the data secured.

*Pearson: Drapers Co. Research Memoirs, A First Study of the Statistics of Pulmonary Tuberculosis, 1907.

In England Dr. Niven, of Manchester, has done good work in the collection and use of family histories.

It seems to me that the family, which should be the unit for investigation, should consist of the husband and wife, the children, and all others who may happen to be members of the household. If the children are primarily infected, only one schedule will be needed; but if one of the parents is infected, another schedule will be needed for the family of which that parent was a member before marriage. In all schedules it is desirable to have as few data as possible and omit none that are necessary. The following is a schedule that I have planned to use in Providence. The individual history of a patient may be noted on the reverse, or reference may be given to another set of records.

TUBERCULOSIS.

No. 246. Medical History of Family (*i. e.*, Father, Mother, Children, Sister, Brother). Date, June 18, 1908.

Name.	Age at Present, or if Dead, at Death.	Residence at Present or at Time of Death.	Tuberculous? Date of First Symptom.	If Dead, Date and Cause of Death.
John Blank.....	25	416 E. 29th St.	Had enlarged glands, 1893. Not strong since. Began to cough two years ago.	
Henry Blank (fa.) ..	52	" " " "		
Fred Blank.....	22	" " " "		
Sarah Blank.....	21	" " " "		
Mary Blank.....	4	126 West Ave.	Sick about one month.	Dec. 4, 1893. Tuberculous meningitis.

Medical History of Members of Household Other than Relatives.

Mary Blank nèe Smith. Tb. in family. See No. 132 in June 2, 1882....	52	416 E. 29th St.	..	..
Maid lived with family twelve years..	30	" " " "		

The preparation of a schedule, the collection of the data, and their study may be undertaken by a committee, but committee work is likely to lack enthusiasm and initiative. That more family records should be made and that they should receive critical study is certain. It is to be hoped that in the near future health officials, dispensary workers, and hospital physicians will become more and more interested in this line of research.

Necesidad de la Historia de las Familias Para el Estudio de la Tuberculosis.—(CHAPIN.)

Se establece el valor de los antecedentes de la familia respecto á los casos de difteria y fiebre scarlatina. Estos resultados sugieren que anales semejantes deben conservarse de los casos de tuberculosis. Se señala la ausencia de tal estadística y se insiste en lo dificil de obtener el hecho; que tales datos serían de gran valor en los estudios epidemicológicos de la enfermedad, y serían una ayuda para resolver algunos problemas oscuros actualmente en discusíon, tales como la herencia, la susceptibilidad, el estado latente, lugar de infección, etc. También, ayudarían estos datos para determinar métodos efectivos para prevenir la enfermedad. Se indica la familia como unidad de estudio, así como también se indica el uso de cédulas para la recolección de datos.

Besoin d'histoires de famille pour l'étude de la tuberculose.—(CHAPIN.)

La valeur de registres de cas de dipthtérie et de fièvre scarlatine dans les familles étant admise, il faudrait tenir des registres pareils de cas de tuberculose. Le manque de statistiques pareilles est signalé, et quoiqu'elles soient difficiles à obtenir, on assure que de telles données seraient très-utiles dans les études épidémiologiques de la maladie et aussi pour résoudre certains problèmes obscurs que l'on discute à present, tels que l'hérédité, la susceptibilité, la latence, l'infection des lieus, etc.

Ces données aideraient aussi à découvrir des méthodes effectives pour l'empêchement de la maladie. On suggère la famille comme unité pour l'étude, et l'usage de listes, uniformes pour recueillir les statistiques.

Die Notwendigkeit von Familiengeschichten für das Studium der Tuberkulose.—(CHAPIN.)

Der Wert von Familienberichten in Fällen von Diphtherie und Scharlach ist constatirt. Diese Resultate zeigen, dass ähnliche Berichte in Fällen von Tuberkulose gehalten werden sollten. Die Abwesenheit von solchen Statistiken ist fühlbar, und während sie schwer zu erhalten sind, ist die Tatsache betont worden, dass solche Daten von grossem Wert wären in epidemiologischen Studien der Krankheit und eine Hilfe in der Lösung der dunklen Probleme, die jetzt unter Discussion sind, wie Erblichkeit, Empfänglichkeit, Latenz, Platzinfection, etc. Diese Daten würden auch bei der Bestimmung wirkungsvoller Methoden zur Verhinderung der Krankheit helfen. Die Familie ist als die Einheit für das Studium vorausgesetzt und der Gebrauch einheitlicher Tabellen für das Sammeln der Daten wird dringend verlangt.

OFFICIAL INFORMATION NECESSARY TO SOCIAL CONTROL OF TUBERCULOSIS.

By Messrs. W. H. Allen and Rufus E. Miles,
Bureau of Municipal Research, New York.

The paramount needs of the crusade against tuberculosis are now financial support and administrative efficiency, rather than further inquiry and experiment. Scientific knowledge already possessed will not be applied unless the public is continuously informed as to danger centers, resources for fighting tuberculosis, field covered, field not covered, work done, work not done, and equipment and cost necessary to discharge 100 per cent. of each community's obligation.

Indispensable to financial support and administrative efficiency are the making known work already done and emphasizing work not yet done, through: (*a*) Administrative records and reports within health department, hospital, etc.; (*b*) periodic reports to the public, giving information necessary to enable communities to gage progress and forecast needs; (*c*) annual budgets, segregated by function, comparing cost of work already done with cost of work necessary for the coming year, and prohibiting the transfer from purpose advertised without public explanation of the reason.

Budgets and public reports will not be educative and truthful unless officials receive daily and weekly reports from subordinates, describing work done when it is done, so that work not done properly, or not attempted, will stand out clearly. No hospital or department of health can be efficient that runs after information instead of having information flow continuously to headquarters. Finally records, reports, and budgets should be uniform, so that one city can learn from others' experience.

The value of administrative records and of reports that reflect administrative results is strikingly shown in the reporting forms recently adopted by the New York Department of Health. Notable features of six tables devoted to tuberculosis are: Elimination of duplicate registration; 21 items pertaining to living cases registered; summary of cases in homes under observation; 21 items pertaining to district inspection, disinfection,

nurses' treatment, etc.; 36 items showing results of diagnosis, examination of sputum, and clinical treatment.

Most important of all municipal days is budget day, hitherto most neglected. As leader of the community in the war on tuberculosis the public health officer must not only direct the execution of preventive, curative, and educational measures, but he must secure support for them. No matter how brilliant his strategy, he fails if his measures are crippled by insufficient resources. Budgets need not be abstruse or complex. Graphic presentation is not inconsistent with professional dignity. Budgets should further business-like relations between health officials and the money-voting body. Budgets properly constructed will stimulate public interest in the official program. If tuberculosis clinics are not sufficiently provided for, the suspension of their work for two weeks might rouse such a protest that funds would be immediately forthcoming. New York City's Department of Health has taken the lead in presenting a budget showing clearly work not yet done, and instead of asking support for a "Bacteriological Laboratory Fund," it now requests provision for: 1. District inspection, medical inspection, tuberculosis nurses. 2. Clinics for treatment of communicable pulmonary diseases, attending physicians and nurses. 3. Diagnosis laboratory, bacteriologists, collection, preparation, and examination of specimens.

This effort to make plans clear has been rewarded by largely increased appropriations. Moreover, its experience has led directly to the adoption (by the American metropolis) of a segregated, classified budget, that bids fair to revolutionize American methods of providing not only for health programs, but for the administration of every phase of public business.

Über die nötigen offiziellen Informationen für die soziale Controlle der Tuberkulose.—(Allen und Miles.)

Was gegenwärtig im Kampfe gegen die Tuberkulose hauptsächlich Not tut, sind nicht weitere Nachforschungen und Experimente, sondern finanzielle Unterstützung und administrative Tätigkeit. Um die wissenschaftlichen Kenntnisse, welche wir bereits besitzen, praktisch verwerthet zu sehen, muss das Publikum fortwährend informirt werden über die Gefahr von Krankheitsherden, über die vorhandenen Mittel zur Bekämpfung der Tuberkulose, über das bereits bearbeitete und das noch zu bearbeitende Feld, über das was bereits getan worden ist und was noch zu tun bleibt, über die notwendige Ausstattung und Ausgaben, welche jedes Gemeinwesen haben muss, um 100% von seinen Verpflichtungen nachzukommen.

Für finanzielle Unterstützung und administrative Tätigkeit ist es un-

bedingt notwendig, bekannt zu machen, was bereits getan ist und besonders hervorzuheben, was noch nicht getan ist. Das soll geschehen durch: (*a*) Protokollirung and Berichterstattung aus dem Gesundheitsamt, Hospitälern u. s. w.; (*b*) Periodische Berichterstattung fürs Publikum, aus denen dasselbe durch die nötige Auskunft in den Stand versetzt wird, den gemachten Fortschritt zu überblicken, und die bestehenden Bedürfnisse zu überschlagen. (*c*) Jährliche Finanzberichte, nach verschiedenen Abteilungen gesondert nebst Vergleichanstellung der Ausgaben für Geleistetes mit den notwendigen Ausgaben für das kommende Jahr, wobei Übertragungen von Geldern, welche für einen bestimmten Zweck bewilligt wurden, für einen anderen, ohne öffentliche Begründung desselben, verboten werden.

Finanz- und sonstige öffentliche Berichte können nur dann erzieherisch und wahrheitsgetreu sein, wenn die Beamten täglich und wöchentlich von ihren Gehülfen Berichte erhalten, in denen das was berichtet, auch wirklich geschehen ist, so dass diejenige Arbeit, welche nicht getan worden ist, oder nicht versucht worden zu tun, klar hervortritt. Kein Hospital oder Gesundheitsamt kann ordentlich geführt werden, wenn es erst Informationen einfordern muss, anstatt dass dieselben stetig ins Hauptamt einlaufen. Endlich sollten Protokolle, Berichte und Budgets nach einem gleichartigen Princip abgefasst werden, damit eine Stadt aus der Erfahrung einer anderen lernen kann.

Der Wert von Verwaltungs-Protokollen und Berichten, die Resultate veranschaulichen, tritt sehr deutlich aus den von dem Gesundheitsamte in New York vor kurzem adoptirten Berichts-Formularen hervor. Bemerkenswerte Punkte in den der Tuberkulose gewidmeten 6 Tabellen sind: Vermeidung zweimaliger Registrirung, 21 Posten in Bezug auf Registrirung lebender Fälle, Gesammtbericht der Fälle, die zu Hause unter Beobachtung stehen, 21 Posten in Bezug auf Distriktinspektion, Desinfektion, Behandeln von Pflegern u. s. w., 36 Posten, welche die Resultate der Diagnose, der Untersuchung des Auswurfes und der klinischen Behandlung zeigen.

Der wichtigste Tag von allen ist bei einer Stadtverwaltung der Budget-Tag, welcher bis jetzt meistens vernachlässigt wurde. Als Hauptführer des Gemeinwesens im Kampfe gegen die Tuberkulose muss der öffentliche Beamte nicht nur die Ausführung von Massregeln zur Verhütung, Behandlung und Erziehung leiten, sondern er muss auch für die nötige Unterhaltung derselben Sorge tragen. Er mag noch so glänzende strategische Fähigkeiten besitzen, wenn aber die von ihm vorgenommenen Massregeln durch ungenügende Mittel verkrüppelt werden, so muss er verlieren. Ein Budget braucht nicht schwerverständlich oder complizirt zu sein. Eine graphische Darstellung ist nicht unvereinbar mit professioneller Würde. Das Budget muss geschäftsmässige Beziehungen zwischen den Vorstehern des Gesundheitsamtes und der geldbewilligenden Körperschaft fördern.

Richtig abgefasste Budgets regen das öffentliche Interesse am offiziellen Programm an. Wenn Kliniken für Tuberkulöse nicht genügend versorgt werden, so genügt es, die Tätigkeit derselben für zwei Wochen einzustellen um einen solchen Protest hervorzurufen, dass sofort Mittel verschafft werden würden.

Das Gesundheitsamt der Stadt New York ist das erste, welches ein Budget vorlegt, in dem klar auseinander gesetzt wird, was noch nicht getan worden ist, und statt um Unterstützungsgelder für ein bakteriologisches Laboratorium zu bitten, verlangt dasselbe jetzt Bewilligungen—

1. Für Distrikt-Inspektion,—für ärztliche Inspektion,—für Pflegerinnen für Tuberkulöse.

2. Für Kliniken für übertragbare Lungenkrankheiten, für behandelnde Ärzte und Pfleger.

3. Für ein diagnostisches Laboratorium,—für Bakteriologen,—für sammeln, herstellen und untersuchen von Präparaten.

Diese Bemühungen, die Pläne klar vorzulegen, sind belohnt worden durch bedeutend vergrösserte Bewilligungen. Ferner hat es direct zur Annahme (in den amerikanischen Hauptstädten) abgesonderter, klassifizirter Budgets geführt. Dieses verspricht, eine Umwälzung nicht nur in den amerikanischen Methoden für Gesundheitsmassnahmen hervorzubringen, sondern auch in der Leitung aller öffentlichen Geschäftsangelegenheiten.

AT WHAT AGE-PERIODS AND IN WHAT MEASURE HAS THE REDUCTION IN THE MORTALITY RATE FROM TUBERCULOSIS MANIFESTED ITSELF IN THE CITY OF NEW YORK DURING THE PAST FORTY YEARS?

By Dr. W. H. Guilfoy,
Registrar of Records, Department of Health, City of New York.

In studying the names given to the tubercular causes of death of forty years ago, we are struck with what appears to be an entire change of nomenclature when compared with the terms in vogue at the present day—phthisis pulmonalis has been superseded by pulmonary tuberculosis, hydrocephalus by tuberculosis of the meninges, tabes mesenterica by abdominal tuberculosis, psoas abscess and disease of spine by Pott's disease, hip-joint disease by tuberculous hip-joint disease; the only allied term that has held its own in all these years being scrofula. These changes indicative of infection by a specific agent, and consequent upon the discovery by Koch of the tubercle bacillus, represent the establishment upon a firm basis of the recognized principles of preventive and curative ways and means employed in the extermination of this dread destroyer.

The late Dr. Elisha Harris, the first Registrar of Vital Statistics of the Metropolitan Board of Health of the City of New York, and one of the ablest and foremost pioneers in blazing out the paths to be followed in sanitary and statistical warfare,—for in those days it was actual warfare,—wrote into the pages of its third annual report, in 1868, the following sentences:

"Hygienists now can measurably restrain and prevent the generation of this disease, which in our Northern and Middle States prematurely destroys from 20 to 35 per cent. of all persons who pass the age of childhood, or from 12 to 18 per cent. of the total at all ages; for at least four of its factors of causation are now recognized in the list of avoidable conditions, to wit: (1) Wetness of grounds and habitation; (2) impurity of air and unwholesomeness of circumstances in indoor life; (3) defective sunlighting of dwellings; (4) needless exposure of non-consumptive persons to the consumptive in unventilated places; avoidance of the contagious element in phthisis and of the circumstances that render its contagious property operative. Even the hereditary constitutional perpetuating property of tuberculosis may, year by year, and generation after generation, be diminished in the extent of its operation, for hygienic considerations should, and in a higher civilization will, favorably influence intelligent men in the selection of wives who are to

be the mothers of their children: yet this may be the last in the series of preventive measures against phthisis; and, like the physiological requirements of hygienic alimentation, exercise, and sunlighting, the applications of hygiene to the hereditary improvement of the quality of our race will be attained only in a higher state of the popular intelligence."

The man who formulated such doctrine forty years ago could not but view with contented eyes, in the event of a visit as a reincarnated spirit to this hustling mundane sphere, the segregation of consumptives, the open-air treatment, the avoidance of the infectious element, the sunlighting of dwellings, the establishment of parks, hygienic alimentation and sanitation, and last, but not least, the elevation of popular intelligence to a higher plane; the phrase "a higher civilization will favorably influence intelligent men in the selection of wives who are to be the mothers of their children" reveals us to-day in the position of "side-stepping" this knotty problem. No small wonder, then, that the work of comparison of the statistics of the present day with those compiled under his supervision was simple in the extreme.

The first striking feature of the reduction in the mortality rates is that at every age-group in both males and females the percentage of decrease is considerable, with the exception of the age-group 45–55 in the males, in which the reduction is only 1 per cent., and the group 10–15 in the females, in which it reached the comparatively low mark of 7 per cent., this latter explainable by the impaired general physical condition attendant upon the assumption of the generative function and thereby an increased liability to tubercular infection.

The second feature of the decrease in the pulmonary tuberculosis rate is the greater decrease at all age-groups among the females compared with those of the males, with the exception of the ages under five and between ten and fourteen; the reduction percentage of the female mortality at all ages is 55, and that of the males only 29—slightly more than one-half that of the females. This is the more remarkable when we consider that of late years the female has taken up occupations classed as dangerous from an infectious standpoint, such as those of typewriting, saleswomen, flower-making, feather-working, etc. Why should the rate from this cause of death be almost 50 per cent. lower in the female sex than in the male? Exposure to the elements on the part of the latter has been offered as an explanation, and is true to some extent, as the death-rate from pulmonary tuberculosis up to the twenty-fifth year is almost the same in the male as in the female, and at all ages above twenty-five the rate among males is greatly in excess. The abuse of alcohol is undoubtedly one of the potent factors in rendering the male more prone to infection and less amenable to recovery than the female; even the use of alcohol in the treatment of tuberculosis is being gradually discarded by the careful physician of to-day.

A third explanation of this phenomenon of the weaker sex surviving the stronger is that based upon anatomical and physiological difference of sex, the female, by reason of the predominance of superior costal breathing, more fully expands the apices of the lungs, and as tuberculous inflammation generally begins at the apices, consequently the natural physiological exercise of these parts militates against harboring the bacillus tuberculosis therein.

The table also shows that at the ages above sixty-five years, in both sexes, the reduction in the death-rate has been greatest: that the age-group at which the heaviest mortality prevails is that of 45–54 in males and both sexes combined, and 35–44 in females; that at the age-group 45–54 seven males died to two females.

The claims made as to the considerable reduction (41 per cent.) in the death-rate from pulmonary tuberculosis at all ages, being one based upon the certification in early years of obscure pulmonary diseases as phthisis pulmonalis—the greater accuracy in diagnosis and certification of the present day serving to enter causes of death under their proper titles,—are not capable of statistical proof; on the contrary, it is fair to assume that in the past, if crude diagnosis placed doubtful pulmonary diseases under the heading "phthisis," thus transferring them from their proper heading under "diseases of the respiratory organs," we should expect to find the death-rates from the latter causes increased in harmony with the decrease from pulmonary tuberculosis. Such is not the case, however. Upon comparing the returns for the years 1868 and 1907, we find that at those age-groups at which the maximum number of deaths from pulmonary tuberculosis is reported, that is, between fifteen and forty-five years, the death-rate decreased 40 per cent. in pulmonary tuberculosis, while that from diseases of the respiratory organs not only did not increase at the ages mentioned, but at these, as well as at all ages, showed a decrease of 7 per cent. Again, we must take into consideration that since influenza has become a factor in mortality tables the deaths from respiratory diseases have increased considerably, and in the year 1907 this was especially true by reason of the severity of the epidemic; it may be argued that deaths which should have been entered as pulmonary tuberculosis in the year 1868 were credited to causes other than those of the respiratory organs, as evidenced by the increased death-rates from all causes at age-groups forty-five years and over, as shown in the table; but that argument may be met by a glance at the second table, which shows that the increase is due to the extraordinary rise in the death-rates from circulatory, urinary, and cancerous diseases, and the moderate one in the rates from respiratory diseases at these age-groups; the increased percentage in the death-rate at ages forty-five years and over was 251 in circulatory, 153 in urinary, 124 in cancerous, and 43 in respiratory diseases.

The death-rates from other tuberculous diseases at all ages show a much greater decrease than that from pulmonary tuberculosis, the percentage reduction being almost the same for males and females—78 against 76. This equality in the decrease is all the more curious by reason of the large discrepancy in the reduction of the rate from pulmonary tuberculosis in the female compared with that in the male. The rates at age-groups other than those under ten years should be disregarded by reason of the small number of deaths compared, especially those of the year 1868. Eighty per cent. of the deaths under ten years of age from other tuberculous diseases are reported as tuberculous meningitis, and it is likely that the decreased mortality from this cause is a real one, as the varieties of meningitis other than tuberculous show a considerable reduction in their death-rates.

The death-rates from all forms of tuberculosis show a considerable decrease at all ages, the reduction reaching 41 per cent. among the males and 60 per cent. among the females, that of both sexes being exactly 50 per cent.

The different age-groups of the males show considerable decreases, with the exception of that of 45–54 years, the increase being almost 1 per cent., which for all practical purposes may be disregarded; among the females the age-group 10–14 shows an increase of 15 per cent.

The third chart is based upon the absolute number of deaths reported in 1868 and 1907 from pulmonary tuberculosis, and shows the five age-groups at which the highest mortality occurs, arranged by sex and person in the order of their numerical supremacy. It shows that among the males the greatest number of deaths in 1868 occurred at the age-group 25–34 years, and the second greatest number at 35–44, and then follows the groups 15–24 and 45–54; in the year 1907 the first two mentioned groups exchanged places, as did the second two; in other words, that there was a postponement of the fatal issue in many instances, a comparatively short one considering the intervening gap of forty years. Among the females the age-groups in question maintain the same position in 1907 as in 1868; that is, there has been apparently no lengthening of life among females suffering from this disease; in fact, the comparison of the ratios between the figures of alternate age-groups for 1868 with those of 1907 warrants us in deducing that life has been shortened. As regards both sexes, the age-groups maintain the same position in 1907 as in 1868, but a study of the figures of both years justifies us in the conclusion that there is no shortening of the duration of life. In order to ascertain if these conclusions may be drawn, calculations were made as to the mean age at death from pulmonary tuberculosis of both sexes combined, and males and females separately between the ages of fifteen and sixty-four. Admission is made that using this test as a measure of the duration of human life is open to serious objection, but the percentages of the age-groups 15–64 of the entire population in 1907 are fairly identical with those

of 1868, the percentages under fifteen years and over sixty-five years of the populations in 1868 and 1907 varying considerably; these latter age-groups were therefore excluded, and as the results are used simply to corroborate deductions drawn from the table under consideration, we hold that the use of this test is allowable. The mean average age at death of males from this cause in 1868 was thirty-six years, three months, and in 1907, thirty-eight years and three months—an increase in length of life of two years; the mean average age at death of females from this cause in 1868 was thirty-six years, one month, and in 1907, thirty-three years and eight months—a shortening of the duration of life by one year and five months; the figures for both sexes combined were thirty-six years and one month in 1868, and thirty-six years and nine months in 1907—an increase of eight months. From this we must infer that the prolongation of life in tuberculous patients has been, on the whole, comparatively meager; that the male, by reason of his preponderance over the female as to tubercular infection, and probably by the self-sacrifice of his consort, has received more attention at the hands of the public officials than the female, and in consequence the latter has not fared so well as to the added duration of life. It is true she has progressed further as to the diminution of the death-rate at most age-groups and at all ages, when compared with the male; she has probably sought medical aid earlier than the male in the commencement of the disease, and consequently more cases of complete cure are credited to her sex than to the male. The figures reiterate the necessity of early diagnosis and treatment, for without these the outlook for the eradication of tuberculosis is indeed gloomy.

The brighter side of the question may be viewed from the standpoint that thousands of lives are saved yearly, as shown by the decrease in the death-rate at all ages. If the death-rate at all ages of both sexes in the year 1868 be applied to the population of the present boroughs of Manhattan and the Bronx, there would have been 10,190 deaths recorded from pulmonary tuberculosis, against 6030 actually recorded—a difference of 4160; that coincident with the saving of lives there has been a saving in health to the community immeasurable in its value. Another and darker view may be presented by the fact that during the past five years the death-rate from tuberculosis has been almost at a standstill in the city of New York, and its seems to me that more drastic steps must be taken if we are to progress in our work; standing still is retrograding. The city, State, and nation must provide for the old, advanced cases, for whom but slight provision has been made in the past, and who undoubtedly are the chief factors in the dissemination of infection. When this duty is fully performed, and not until then, we may hope to see the arrival of the happy day when tuberculosis has disappeared from the civilized world.

POPULATION, DEATHS, AND RATES PER 1000 AT DIFFERENT AGE-PERIODS FROM ALL CAUSES AND TUBERCULOUS DISEASES FOR THE YEARS 1868 AND 1907. OLD CITY (MANHATTAN AND BRONX).

	Population at Different Age-Groups.		All Causes.				Per Cent. Reduction in Mortality.	Pulmonary Tuberculosis.				Per Cent. Reduction in Mortality.	Other Tuberculous.				Per Cent. Reduction in Mortality.	All Tuberculous.				Per Cent. Reduction in Mortality.
			Deaths.		Rates.			Deaths.		Rates.			Deaths.		Rates.			Deaths.		Rates.		
	1868	1907	1868	1907	1868	1907		1868	1907	1868	1907		1868	1907	1868	1907		1868	1907	1868	1907	
										MALES												
Under 5 years ..	52,882	146,172	6,909	8,455	130.60	57.85	—56%	79	65	1.49	0.45	—70%	551	230	10.40	1.57	—85%	630	295	11.91	2.02	—83%
5–9.....	44,660	126,012	452	577	10.10	4.58	—55%	18	24	0.43	0.19	—56%	23	43	0.52	0.34	—35%	41	67	0.92	0.53	—42%
10–14....	39,450	106,782	199	286	5.04	2.68	—47%	19	16	0.48	0.15	—69%	13	11	0.33	0.10	—72%	32	27	0.80	0.25	—69%
15–19....	40,553	103,967	249	545	6.14	5.24	—15%	79	171	1.95	1.65	—15%	4	13	0.10	0.13	30%	83	184	2.04	1.77	—13%
20–24....	38,592	123,946	518	945	13.42	7.62	—43%	222	329	5.75	2.65	—54%	1	19	0.03	0.15	400%	223	348	5.77	2.81	—51%
25–29....	39,910	138,884	647	1,309	16.21	9.42	—42%	258	492	6.46	3.54	—45%	3	29	0.08	0.21	163%	261	521	6.54	3.75	—43%
30–34....	36,984	126,478	666	1,581	18 01	12.50	—31%	242	566	6.54	4 48	—32%	1	16	0.03	0.13	333%	243	582	6.57	4.60	—30%
35–44....	59,966	196,957	1,219	3,594	20.32	18.25	—10%	369	1087	6.15	5.52	—10%	10	27	0.17	0.14	—18%	379	1114	6.32	5.66	—10%
45–54....	37,639	108,920	992	3,468	26.36	31.84	21%	267	764	7.09	7.01	— 1%	6	32	0.16	0.29	81%	273	796	7.25	7.31	— 1%
55–64....	15 964	56,585	673	2,822	42.15	49.87	18%	159	305	9.96	5.39	—46%	8	7	0.50	0.13	—74%	167	312	10.46	5.51	—47%
65 & over	7,482	28,316	776	3,032	103.71	107.10	3%	100	114	13.37	4.03	—70%	9	4	1.20	0.14	—88%	109	118	14.57	4.17	—71%
All ages ..	414,082	1,259,617	13,300	26,614	32.12	21.13	—34%	1812	3933	4.38	3.12	—29%	629	431	1.52	0.34	—78%	2441	4364	5.89	3.47	—41%
										FEMALES.												
Under 5 years ..	51,805	145,044	6,158	7,190	118.90	49.57	—58%	68	67	1.31	0.46	—65%	453	181	8.74	1.25	—86%	521	248	10.06	1.71	—83%
5–9.....	44,486	126,463	404	473	9.08	3.74	—59%	23	21	0.52	0.17	—67%	12	37	0.27	0.29	7%	35	58	0.79	0.46	—42%
10–14....	39,920	107,531	134	296	3.36	2.75	—18%	22	55	0.55	0.51	— 7%	2	19	0.05	0.18	260%	24	74	0.60	0.69	15%
15–19....	47,765	123,093	274	510	5.74	4.14	—28%	96	185	2.01	1.50	—25%	5	23	0.10	0.19	90%	101	208	2.11	1.69	—20%
20–24....	48,140	149,658	525	815	10.91	5.45	—50%	248	298	5.15	1.99	—61%	1	20	0.02	0.13	550%	249	318	5.17	2.13	—59%
25–29....	45,230	142,734	581	974	12.84	6.82	—47%	248	342	5.48	2.40	—56%	1	18	0.02	0.13	550%	249	360	5.51	2.52	—54%
30–34....	36,518	114,452	520	1,013	14.24	8.85	—38%	186	291	5.09	2.54	—50%	2	14	0.05	0.12	140%	188	305	5.15	2.66	—48%
35–44....	59,659	172,421	944	2,146	15.83	12.44	—21%	332	461	5.57	2.67	—34%	4	17	0.07	0.10	43%	336	478	5.63	2.77	—51%
45–54....	36,296	103,698	642	2,040	17.69	19.67	11%	173	210	4.77	2.03	—57%	1	5	0.03	0.05	67%	174	215	4.79	2.07	—57%
55–64....	16,953	58,051	498	2,229	29.37	38.43	31%	119	96	7.02	1.66	—76%	4	10	0.24	0.17	—29%	123	106	7.26	1.83	—75%
65 & over	10,283	34 920	909	3,398	88.40	97.30	10%	87	71	8.46	2.03	—76%	11	4	1.07	0.11	—90%	98	75	9.53	2.15	—77%
All ages ..	437,055	1,275,065	11,589	21,084	26.52	16.53	—38%	1602	2097	3.67	1 64	—55%	496	348	1.14	0.27	—76%	2098	2445	4.80	1.92	—60%
										BOTH SEXES.												
Under 5 years ..	104.687	291,216	13,067	15,645	124.80	53.74	—57%	147		1.40	0.45	—68%	1004	411	9.60	1.41	—85%	1151	543	10.99	1.87	—83%
5–9.....	89,146	252,475	856	1,050	9.60	4.16	—57%	41	45	0.46	0.18	—61%	35	80	0.39	0 32	—18%	76	125	0.85	0.50	—41%
10–14....	79,370	214,313	333	582	4.19	2.72	—35%	41	71	0.52	0.33	—37%	15	30	0.19	0.14	—26%	56	101	0.70	0.47	—33%
15–19....	88,318	227,060	523	1,055	5.92	4.65	—21%	175	356	1.98	1.57	—21%	9	36	0.10	0.16	—60%	184	392	2.08	1.73	—17%
20–24....	86,732	273,604	1,043	1,760	12.03	6.43	—47%	470	627	5.42	2 29	—58%	2	39	0.02	0.14	—600%	472	666	5.45	2.43	—55%
25–29....	85,140	281,618	1,228	2,283	14.42	8.11	—44%	506	834	5.94	2.96	—50%	4	47	0.05	0.17	240%	510	881	5.99	3.13	—48%
30–34....	73,502	240,930	1,186	2,594	16.13	10.77	—33%	428	857	5.82	3.56	—39%	3	30	0.04	0.12	200%	431	887	5.86	3.68	—37%
35–44....	119,625	369,378	2,163	5,740	18.08	15.54	—14%	701	1548	5.86	4.19	—29%	14	44	0.12	0.12	..	715	1592	5.98	4.31	—28%
45–54....	73,935	212,618	1,634	5.508	22.10	25.90	17%	440	974	5.95	4.58	—23%	7	37	0.09	0.17	89%	447	1011	6.05	4.76	—21%
55–64....	32,917	114,636	1,171	5,051	35.59	44.06	24%	278	401	8.45	3.50	—59%	12	17	0.37	0.15	—59%	290	418	8.81	3.65	—59%
65 & over	17,765	63,236	1,685	6,430	94.84	101.7	7%	187	185	10.53	2.93	—72%	20	8	1.13	0.12	—89%	207	193	11.65	3.05	—74%
All ages ..	851,137	2,541,084	24,889	47,698	29.24	18.97	—35%	3414	6030	4.01	2.37	—41%	1125	779	1.32	0.31	—77%	4539	6809	5.33	2.68	—50%

DEATHS AND RATES PER 1000 AT DIFFERENT AGE-GROUPS FROM CIRCULATORY, URINARY, RESPIRATORY, AND CANCEROUS DISEASES, YEARS 1868 AND 1907. OLD CITY (MANHATTAN AND BRONX).

	Circulatory.				Per Cent. Decrease; Increase.	Urinary.				Per Cent. Decrease; Increase.	Respiratory.				Per Cent. Decrease; Increase.	Cancerous.				Per Cent. Decrease; Increase.
	Deaths.		Rates.			Deaths.		Rates.			Deaths.		Rates.			Deaths.		Rates.		
	1868	1907	1868	1907		1868	1907	1868	1907		1868	1907	1868	1907		1868	1907	1868	1907	
MALES																				
Under 5 years	17	56	0.32	0 38	— 19%	30	55	0.57	0.38	— 33%	907	2120	17.15	14.51	—15 %	..	..	..	..	..
5–9	12	35	0.27	0.28	— 4%	14	17	0.31	0.14	— 55%	39	69	0 873	0 548	—37 %	..	..	..	..	..
10–14	19	41	0.48	0.38	— 21%	7	4	0.18	0.04	— 78%	11	39	0 279	0.365	—31 %	4	35	0.02	0.06	—200%
15–19	16	42	0.40	0.40	..	8	12	0.20	0.12	— 40%	17	53	0 419	0 51	—22 %	..	..	..	..	..
20–24	22	63	0.57	0.51	— 11%	21	37	0.54	0.30	— 44%	40	105	1.04	0 847	—19 %	..	..	..	..	..
25–29	32	87	0.80	0.63	— 21%	35	74	0.88	0.53	— 40%	58	156	1.45	1.12	—23 %	2	12	0.05	0.09	— 80%
30–34	23	104	0.62	0.82	— 32%	37	104	1.00	0.82	— 18%	71	204	1.92	1.61	—16 %	4	23	0.11	0.18	— 64%
35–44	68	358	1.13	1.82	— 61%	88	306	1.47	1.55	— 5%	124	507	2.07	2.57	—24 %	13	106	0.22	0.54	—145%
45–54	75	466	1.99	4.28	—115%	70	408	1.86	3.75	—102%	118	477	3.14	4.38	—40 %	21	214	0.56	1.97	—252%
55–64	44	515	2.76	9.10	—230%	53	414	3.32	7.32	—120%	100	446	6.26	7.88	—26 %	23	245	1.44	4.33	—201%
65 and over	63	738	8.42	26.06	—221%	65	505	8.69	17.83	—105%	117	560	15.64	19.80	—27 %	16	204	2.14	7 20	—236%
Total	391	2505	0.94	1.99	—112%	428	1936	1.03	1.54	—50 %	1602	4736	3.86	3.76	—3 %	83	839	0.20	0.67	—223%
FEMALES.																				
Under 5 years	11	67	0.21	0.46	—119%	25	26	0.48	0.18	— 63%	876	1798	16.91	12.40	—36 %	..	..	..	..	..
5–9	18	34	0.41	0.27	— 34%	10	13	0.23	0.10	— 57%	38	57	0.85	0.45	—47 %	..	..	..	..	..
10–14	10	42	0.25	0.39	— 56%	6	11	0.15	0.10	— 33%	10	24	0.25	0.22	—11 %	5	23	0.02	0.04	—100%
15–19	9	60	0.19	0.58	—210%	8	16	0.17	0.16	— 6%	19	43	0.40	0.42	— 5 %	..	..	..	..	..
20–24	20	67	0.42	0.45	— 8%	29	30	0.60	0 20	— 66%	46	55	0.96	0.37	—62 %	..	..	..	..	..
25–29	23	85	0.51	0.60	— 19%	28	72	0.62	0.50	— 19%	41	67	0.91	0.47	—48 %	7	30	0.15	0.21	— 80%
30–34	30	118	0.82	1.03	— 26%	30	83	0.82	0.73	— 11%	37	110	1.01	0.96	— 5 %	16	43	0.44	0.38	— 14%
35–44	15	295	0.75	1.71	—128%	71	231	1.19	1.34	— 13%	78	224	1.31	1.30	..	45	210	0.75	1.22	— 63%
45–54	38	329	1.05	3.17	—202%	46	270	1.27	2.60	—105%	71	246	1.96	2.37	—21 %	56	336	1.54	3.24	—110%
55–64	36	466	2.12	8.03	—279%	21	285	1.24	4.91	—296%	80	386	4.72	6.65	—41 %	53	310	3.13	5.34	— 71%
65 and over	47	817	4.57	23.40	—412%	38	439	3.70	12.57	—240%	150	728	14.59	20.85	—43 %	50	241	4.86	6.90	— 42%
Total	287	2380	0.66	1.87	—183%	312	1476	0.71	1.16	—63 %	1446	3738	3.31	2.93	—11 %	232	1193	0.53	0.94	— 76%
BOTH SEXES.																				
Under 5 years	28	123	0.27	0.22	— 56%	55	81	0.53	0.28	— 47%	1783	3918	17.03	13.45	—21 %	..	..	..	..	..
5–9	30	69	0.34	0.27	— 21%	24	30	0.27	0.12	— 56%	77	126	0.86	0.50	—42 %	..	..	..	..	..
10–14	29	83	0.37	0.39	— 5%	13	15	0.16	0.07	— 56%	21	63	0.27	0.29	— 7 %	9	58	0.02	0.05	—150%
15–19	25	102	0.28	0.45	— 61%	16	28	0.18	0.12	— 33%	36	96	0.41	0.42	— 2 %	..	..	..	..	..
20–24	42	130	0.48	0.48	..	50	67	0.58	0.25	— 57%	86	160	0.99	0.59	—40 %	..	..	..	..	..
25–29	55	172	0.65	0.61	— 6%	63	146	0.74	0.52	— 30%	99	223	1.16	0 79	—32 %	9	42	0.11	0.15	— 36%
30–34	53	222	0.72	0.92	— 28%	67	187	0.91	0.78	— 14%	108	314	1.47	1.30	—12 %	20	66	0.27	0.27	..
35–44	113	653	0.95	1.77	— 86%	159	537	1.32	1.48	— 10%	202	731	1.69	1.98	—18 %	58	286	0.45	0.77	— 71%
45–54	113	795	1.62	3.74	—131%	116	678	1.66	3.19	— 92%	189	723	2.71	3.40	—26 %	77	549	1.04	2.58	—148%
55–64	80	981	2.43	8.56	—252%	74	699	2.25	6.10	—171%	180	832	5.47	7.26	—33 %	76	555	2.34	4.84	—107%
65 and over	110	1555	6.19	24.60	—297%	103	944	5.80	14.93	—157%	267	1288	15.03	20.37	—36 %	66	445	3.71	7.04	— 90%
Total	678	4885	0.80	1.92	—140%	740	3412	0.87	1.34	— 54%	3048	8474	3.58	3.33	— 7 %	315	2000	0.37	0.79	—114%

MAXIMUM MORTALITY FROM PULMONARY TUBERCULOSIS, BY SEX AND AGE-GROUPS.

Males.				Females.			Both Sexes.		
Age-groups.	1868 Deaths.	Age-groups.	1907 Deaths.	Age-groups.	1868 Deaths.	1907 Deaths.	Age-groups.	1868 Deaths.	1907 Deaths.
25–34 years . .	500	35–44 years	1087	25–34 years .	434	643	25–34 years .	934	1691
35–44 " . .	369	25–34 " .	1058	15–24 " .	344	483	35–44 " .	701	1548
15–24 " . .	301	45–54 " .	764	35–44 " .	332	461	15–24 " .	645	983
45–54 " . .	267	15–24 " .	500	45–54 " .	173	210	45–54 " .	440	974
55–64 " . .	159	55–64 " .	305	55–64 " .	119	96	55–64 " .	278	401

A qué Períodos de la edad y en que extensión se ha Manifestado la Mortalidad por Tuberculosis en la Ciudad de Nueva York, Durante los Ultimos 40 Años.—(Guilfoy.)

1. Nomenclatura de las enfermedades tuberculosas en los sesenta primeros años, comparada con las de hoy.

2. La edad constitucional de la población de la cuidad en 1865 comparada con la del presente.

3. Tuberculosis de los pulmones. A qué edad y en qué extensión ha tenido lugar la reducción en mortalidad comparando la proporción de muertos en 1868 con la de 1907.

4. Otras enfermedades tuberculosas. A qué edad y en qué extensión ha tenido lugar la reducción en mortalidad comparando la proporción de muertos en 1868 con la de 1907.

5. La edad media de muerte de tuberculosis pulmonar y de todas las enfermedades tuberculosas en 1868 comparada con la de 1907.

Mortalité due à la tuberculose dans la ville de New York pendant les dernières 40 années au point de vue de l'âge.—(Guilfoy.)

1. Nomenclature des maladies tuberculeuses en usage d'environ 1860 à 1870; comparaison à celle d'aujourd'hui.

2. Composition de la population selon l'âge en 1865, comparée à celle d'aujourd'hui.

3. Tuberculose pulmonaire. A quels âges et en quelle mesure la réduction de la mortalité a-t-elle eu lieu. Comparaison des chiffres de 1868 à ceux de 1907.

4. Autres maladies tuberculeuses. A quels âges et en quelle mesure la réduction de la mortalité a-t-elle eu lieu. Comparaison des chiffres de 1868 à ceux de 1907.

5. Âges moyens des cas de mort due à la tuberculose pulmonaire et des cas de mort due à toutes les maladies tuberculeuses en 1868, comparés à ceux de l'année 1907.

Zu welchen Altersperioden und in welchem Masse hat die Sterblichkeitsrate an Tuberkulose sich während der letzten vierzig Jahre in der Stadt New York bemerkbar gemacht?—(GUILFOY.)

1. Nomenclatur der tuberkulösen Erkrankungen in den Sechziger Jahren; Vergleich mit jenen von heute.

2. Die Alterszusammensetzung der Bevölkerung der Stadt im Jahre 1865 verglichen mit der von heutzutage.

3. Lungentuberkulose. In welchen Altersstufen und in welchem Masse hat die Verminderung der Sterblichkeit stattgefunden beim Vergleiche der Todesraten von 1868 mit denen von 1907?

4. Andere tuberkulöse Erkrankungen. In welchen Altersstufen und in welchem Masse hat die Verminderung der Sterblichkeit stattgefunden beim Vergleiche der Todesraten von 1868 mit denen von 1907?

5. Durchschnittsalter von Todesfällen bei Lungentuberkulose und von allen tuberkulösen Erkrankungen im Jahre 1868 verglichen mit jenen von 1907.

DISCUSSION.

WALTER F. WILLCOX: Dr. Guilfoy has pointed out several interesting indications from a comparison of the New York city statistics of 1868 and 1907. Perhaps the most important, and certainly the most interesting to me, is the evidence that the decrease in tuberculosis among females has been nearly twice as rapid as among males. To explain this difference he has offered several suggestions. Let me offer another, which seems to me somewhat more probable than any he has suggested. As was pointed out by Dr. Newsholme in his brilliant lecture Tuesday evening, the decrease of tuberculosis in European countries and cities has occurred, as a rule, wherever there has been an increase in the segregation of advanced cases, and nowhere else. Such an increase in segregation has certainly been going on in New York city. This change, I believe, has been a greater protection to women than to men. For if a person dying of consumption is being cared for at home, the nurse is almost sure to be a woman. The removal of such a case to the hospital or other institution therefore tends to protect women more than men.

This explanation seems to be supported by two facts: First, the greater decrease of tuberculosis among women is not confined to New York city,

but occurs in nearly all places where a decrease in the total rate is found, and is thus almost, if not quite, coextensive with the area showing an increasing segregation of advanced cases. Secondly, the figures for New York city show that the greater decrease is almost confined to women at least twenty-five years of age, and so old enough to assist as nurses in the care of advanced cases of tuberculosis.

May I pass from a discussion of Dr. Guilfoy's paper to the general topic of the meeting this morning? We have heard from a distinguished justice of the Supreme Court that the Constitution does not permit any limitation upon the hours of labor permissible to men, but he has also pointed out a most important qualification of this position. If labor for long hours in a given occupation can be shown to be unhealthful and injurious to the general population, then such a law may be held constitutional under the police power. What is needed, then, to reconcile public opinion in certain States as reflected in the laws they have enacted with the provision of the Constitution of the United States, is trustworthy evidence regarding the healthfulness of an occupation. That we do not have in this country at the present time.

Let me give two illustrations. Several years ago the Anthracite Coal Strike Commission had to face the question what was a reasonable wage for miners of hard coal in Pennsylvania. This is dependent largely upon the healthfulness of the occupation and the probable working lifetime of the miner. The only statistical evidence they could secure was that regarding the prevalence of accidents in coal mines. From this they concluded that coal mining was a dangerous, but not the most dangerous, occupation. Yet the total healthfulness of an occupation is slightly affected by its death-rate from accidents. The English figures regarding coal miners show that the death-rate from accidents is indeed high, but that the death-rate from tuberculosis is so extremely low as to more than offset the other influences tending to a higher death-rate. This is so marked that one of the leading English statisticians has suggested that coal-dust may have an antiseptic influence.

Perhaps a more important case was that of the law recently passed in New York State limiting the hours of workers in bakeshops of New York City to ten. By a majority of one the Court of Appeals of New York State decided that the medical evidence and opinions cited warranted one in concluding that this occupation was conspicuously unhealthful, and therefore the law was constitutional as a protection to public health. An appeal being taken to the Supreme Court of the United States, that body, also by a majority of one, reversed the highest court of New York, deciding that the evidence submitted did not warrant the conclusion that the occupation of a baker in New York city was conspicuously unhealthful, and that the law in consequence was unconstitutional and void.

It should be noticed that the question which these courts were compelled to pass upon is essentially a question of medical statistics and a question of fact. One who examines the evidence in detail must conclude, I think, that no one can tell with certainty whether this occupation is healthful or unhealthful, and that we never shall know until some adequate statistical basis for a conclusion is laid. It is most unfortunate for the reputation of our learned judiciary that they should be asked and compelled to pass upon points which are not strictly points of law at all, and upon which they cannot claim to be competent experts. The antagonism between their decisions and the public opinion of the community injures their reputation. We surely need some adequate method for securing a greater body of evidence and a better unanimity of opinion as to what are the most healthful occupations under present conditions in the United States. This can be secured only by the gradual building up of an effective and adequate system of statistics of death-rates by occupations.

SECTION VI.

State and Municipal Control of Tuberculosis (*Continued*).

NINTH SESSION.

Friday Afternoon, October 2, 1908.

TUBERCULOSIS IN THE ARMY AND NAVY. TUBERCULOSIS IN CERTAIN PLACES.

Section VI was called to order by Dr. Juan J. Ulloa, of Costa Rica, on Friday afternoon, October 2, at half-past two o'clock.

DIE BEKÄMPFUNG DER TUBERKULOSE IN DER DEUTSCHEN ARMEE.

Von Stabsarzt Dr. Saar,
Berlin.

Das Thema "die Bekämpfung der Tuberkulose in der deutschen Armee" ist Ihnen als Gegenstand einer Arbeit des Oberstabsarztes v. Schultzen vielleicht bekannt aus der deutschen Tuberkulosekongress-Gedenkschrift, die dem 1905 in Paris tagenden internationalen Tuberkulosekongress seitens des deutschen Zentralkomitees überreicht wurde. Im Jahre 1906 hat sodann Herr Stabsarzt Dr. Fischer auf Grund von über 11,000 Zählkarten die Lungentuberkulose in der Armee in einer Monographie bearbeitet.

Wenn ich trotzdem zu obigem Thema kurz das Wort ergreife, so ist es darum, weil immerhin ein kurzer Ueberblick über die zur Bekämpfung der Tuberkulose getroffenen Massnahmen in einem so grossen und gut organisierten Betriebe, wie ihn das deutsche Heer mit seiner Kopfstärke von gegen 600,000 Mann darstellt, für Manchen von Interesse sein dürfte, und weil ferner die Statistik beweist, dass unsere Medizinalverwaltung mit ihren Massnahmen auf dem richtigen Wege ist.

Zum Beweise dessen möchte ich nur kurz vergleichsweise die Zahlen anführen, die die Sanitätsberichte des Jahres 1905–06 sowie des Jahres 1885–86 geben über den Zugang an Tuberkulose insgesammt, den Zugang an Lungentuberkulose und der Zahl der Todesfälle durch Lungentuberkulose in der Armee. Diese beiden Jahrgänge habe ich deswegen herausgegriffen, weil der Sanitätsbericht 1905–06 der neueste, zur Verfügung stehende war und der über 1885–86, welcher 20 Jahre zurückliegt, schon unter dem klärenden Einfluss der Koch'schen Entdeckung des Tuberkelbazillus steht. Bei dieser Gegenüberstellung ergiebt sich Folgendes: Die absoluten Zahlen auf 100,000 der Kopfstärke umgerechnet, sind folgende:

I. 1885–86 betrug der Gesammtzugang an Tuberkulose 330 Mann (auf 100,000), 1905–06 dagegen 190 Mann (auf 100,000), d. h. Abnahme um 42 %.

II. Der Zugang an Tuberkulose der ersten Luftwege und der Lungen betrug 1885–86 230 Mann (auf 100,000), 1905–06 150 Mann,—Abnahme um 35%.

III. Es starben an Lungenschwindsucht 1885–86 67 Mann (auf 100,000), —29% der Erkrankten; 1905–06 jedoch nur 12 Mann (auf 100,000)—8% der Erkrankten. Wir haben somit eine Herabsetzung der Mortalität an Lungentuberkulose um 72%.

Das Schwergewicht der Tuberkulosebekämpfung in der Armee liegt naturgemäss auf prophylaktischem Gebiet. In dieser Hinsicht gilt es bei der Musterung und Aushebung der Heerespflichtigen mit allen nur möglichen Mitteln die zur Tuberkulose disponierten, bezw. im Beginn der Erkrankung befindlichen Leute herauszufinden. In diesem Bestreben wurde die Höchstzahl der bei der Musterung an einem Tage zu untersuchenden Leute von 250 auf 150 herabgesetzt. Auf Vorgeschichte hinsichtlich der Eltern und Geschwister wie auch auf eigene überstandene tuberkuloseverdächtige Erkrankungen besonderer Wert gelegt. Auf Grund eines reichhaltigen Zählkartenmaterials stellte daher Fischer die Forderung auf, dass das Zusammentreffen des bewiesenen Vorhandenseins der Tuberkulose in der direkten Anwendung mit der Tatsache einer bestandenen tuberkuloseverdächtigen Erkrankung bei entsprechender Körperbeschaffenheit als Ausmusterungsgrund zu betrachten sei.

Die bei der Musterung auf Tuberkulose der Athmungsorgane hinweisenden Momente sind als körperliche Besonderheiten zunächst schon bei der Besichtigung des völlig entkleideten Mannes zu beachten. Es wird also zu achten sein auf eingesunkene Ober- und Unterschlüsselbeingruben, länglichen Bau des Brustkastens, flügelartig abstehende Schulterblätter, dünne, schräg verlaufende Rippen, durchsichtige, weisse Haut, Pityriasis (Kleienausschlag). Auch eine Costa decima fluctuans, die nach Stillers umfassenden Untersuchungen als Stigma für den Habitus asthenicus aufzufassen ist, kann durch einen Griff festgestellt werden. Die Anamnese, deren Fragen

zweckmässig den Leuten bereits im Entkleidungsraum zuvor mitzuteilen sind, erstreckt sich hinsichtlich der Tuberkulose auf Eltern, Geschwister und bei den zu Untersuchenden selbst ausser auf überstandene Lungenkrankheiten auch auf vorausgegangene Grippe, Typhus, Masern. Berufstätigkeit und Lebensweise müssen berücksichtigt werden, etwa bestehende Krankheits. zeichen, wie Auswurf, Nachtschweisse, Fieber, Blutspeien, auch Magenstörungen fordern zur genauen Untersuchung der Lungen auf. Man lässt jetzt einige tiefe Athemzüge tun, achtet darauf, ob beide Brusthälften sich gleich gut ausdehnen, ob Hüsteln auf der Höhe der Einathmung erfolgt. Bei der Beklopfung der Lungen sind nicht nur Dämpfungen, sondern auch die Lungengrenzen festzustellen. Bisweilen findet sich perkussorisch als erstes Zeichen beginnender Infiltration eine Schalldifferenz in den Gruben zwischen den beiden Köpfen des Sternocleido-mastoideus.

Bei der Behorchung ist besonders zu beachten das verlängerte und verschärfte Ausathmungsgeräusch über den Lungenspitzen. Verdächtig ist das sogenannte abgesetzte (saccadierte) Athmen, auch unbestimmtes, abgeschwächtes, zögernd nachschleppendes Athmen ist zu beachten. Diagnostisch wertvoll ist—falls vorhanden—das sogenannte Burghart'sche Zeichen, inspiratorisch feines hörbares Knisterrasseln in der vorderen Axillarlinie in Höhe der unteren Lungengrenze. Die Befunde werden in den Listen sorgfältig notiert.

Bei der Musterung festgestellte manifeste Erkrankung an Tuberkulose hat ausser völliger Ausmusterung nach neuerer Bestimmung Fürsorgeüberweisung in Folge Anmeldung durch den Zivilvorsitzenden der Musterungskommission zur Folge.

Das zweite Sieb vor der Einstellung stellt die ungefähr drei Monate nach der Musterung vor sich gehende Aushebung vor. Bei dieser werden noch bisweilen Leute ausgemustert, die teils in der Zwischenzeit erkrankt sind, teils wegen Schwächlichkeit dem Militärarzt auffallen, oder bis zu diesem Termine Bescheinigungen über ihre behaupteten Vorkrankheiten beigebracht haben.

Trotz alledem wird es in absehbarer Zeit nicht gelingen, alle mit latenter Tuberkulose Behafteten von der Einstellung fernzuhalten. Neben dem mit dem Untersuchungsgeschäft verbundenen Geräusch, das eine genaue Untersuchung der Lungenspitzen sehr erschwert, kommen als Grund hiefür die mangelhaften, bezw. falschen Angaben hinsichtlich der Vorgeschichte in Betracht, die in Deutschland besonders bei Freiwilligen veranlasst werden durch den Wunsch, für den Militärdienst als tauglich befunden zu werden. Die wichtige Aufgabe der Aussonderung tuberkuloseverdächtiger Leute fällt daher dem Truppenarzt gelegentlich der Einstellung zu. Dieser verfügt über die nötige Zeit, entsprechende Untersuchungsräume und ist in der Lage, in zweifelhaften Fällen die neueren diagnostischen Hilfsmittel für die Frühdiag-

nose der beginnenden Lungentuberkulose anzuwenden. In dieser Hinsicht erinnere ich nur an den Nutzen der Röntgendurchleuchtung, die in allen grösseren Lazaretten vor sich gehen kann, das William'sche Symptom, die Krönig'sche Methode der Spitzenperkussion, die Auskultation der Lungenspitzen nach vorheriger leichter Massage, sowie die Anwendung der subkutanen oder conjunktivalen diagnostischen Tuberkulinprobe. Ueber die praktische Brauchbarkeit und den Wert der letzteren möchte ich mich—wenn auch mit Vorbehalt—günstig aussprechen. Bei täglich frischer Herstellung der Alttuberkulinlösung haben wir auf der Kraus'schen Klinik in hunderten von Fällen ausser einige Male Phlyktänenbildung nie eine Schädigung gesehen. Dabei ist es selbstverständlich, dass man nur bei ganz reizlosen, gesunden Augen einträufelt. Auch bei akuten Rhinitiden ist nach Görlich's Erfahrung Einträufelung kontraindiziert. Wenn Collin bei Anwendung dieser Probe fürchtet, dass durch Reiben des Auges eine Reaktion vorgetäuscht würde, so ist meines Erachtens dieser Gefahr unschwer dadurch zu begegnen, dass das zweite Auge einen Tropfen physiologischer Kochsalzlösung erhält. Es gilt in der deutschen Armee der Grundsatz, möglichst die Entscheidung über die Dienstfähigkeit unmittelbar nach der Ankunft der Rekruten herbeizuführen, ohne erst zu dem Mittel der versuchsweisen Einstellung um den Heeresdienst zu greifen. Immerhin wird eine Anzahl Leute vorhanden sein, bei denen die Diagnose auf beginnende Tuberkulose nicht gestellt werden kann. Sie kommen auf die Beobachtungsliste. Auf dieselbe Liste kommen späterhin Leute, die während ihrer Rekrutenausbildung an Gewicht abnehmen. Letztere werden, wenn die Untersuchung im Revier objektive Zeichen einer Erkrankung nicht erkennen lässt, zweckmässig zur Beobachtung dem Garnisonslazarett überwiesen, wo naturgemäss das Hauptgewicht auf den Nachweis einer latenten, bezw. beginnenden Tuberkulose gelegt werden muss. In dieser Hinsicht möchte ich neben der Lungentuberkulose an beginnende Nierentuberkulose erinnern und als Frühsymptom, das noch nicht allgemein bekannt ist, das Auftreten von Cylindrurie ohne gleichzeitige Albuminurie erwähnen, das mir selbst zweimal die Diagnose beginnender Nierentuberkulose zu stellen gestattet hat. Die subkutane, diagnostische Tuberkulinprobe wird bei uns prinzipiell nur im Lazarett vorgenommen und nur, wenn dreistündliche Messung drei Tage lang im Werte über 37 Grad (axillar) ergeben hat. An Tuberkulose erkrankte Soldaten werden sofort dem Garnisonslazarett überwiesen. Die Desinfektion ihrer Kleidungsstücke und Bettwäsche erfolgt gleichfalls im Lazarett, die Desinfektion der Stube, auf der sie gewohnt haben, dürfte davon abhängig gemacht werden, ob sie Tuberkelbazillen mit dem Auswurf ausscheiden oder nicht. Ist Tuberkulose festgestellt, so wird sofort das Entlassungsverfahren eingeleitet, die Leute werden bis zu ihrer Entlassung im Lazarett behalten und in grösseren Lazaretten mit besonderen Tuberkuloseabteilungen, in kleineren

in Extrazimmern untergebracht. Die Einrichtungen unserer Lazarette gestatten zur Behandlung der Tuberkulose die Anwendung der dietätischen, medikamentösen, hydrotherapeutischen und der spezifischen Behandlung; jedoch wird letztere nur mit ausdrücklicher Einwilligung des Kranken begonnen und dann meist nur bei Unteroffizieren, die längere Zeit in Behandlung bleiben. In einigen, klimatisch besonders günstig gelegenen Lazaretten (München, Detmold, Hann, Minden, Saarbrücken) sind besondere Stationen für tuberkulöse Lungenkranke eingerichtet, die mit Liegehallen, Tageräumen, Räumen für Massage, und für hydrotherapeutische Massnahmen ausgestattet sind. Längere Sonderkuren kommen nur für Unteroffiziere in Betracht, bei denen die Wiederherstellung der Garnisonsdienstfähigkeit angestrebt wird. Diese werden auch, und mit gutem, Erfolge in das an der Nordsee gelegene Militärkurhaus zu Norderney geschickt.

Nach dem Ausscheiden aus dem Heeresdienst erhalten die Tuberkulösen bei bestehendem Versorgungsanspruch Pension, die sich in ihrer Höhe nach der Länge der Dienstzeit und dem Grade der Erwerbsfähigkeit richtet.

Ferner können jährlich eine Anzahl tuberkulöser Invaliden auf Reichsfond längere Kuren in Lungenheilstätten bewilligt erhalten.

Für Offiziere und Sanitätsoffiziere besteht seit dem Jahre 1901 als Heilanstalt für beginnende Lungentuberkulose ein Genesungsheim in Arco (Südtirol), ein Geschenk des deutschen Kaisers. Es bietet für 25 Kurgäste Raum, ist mustergültig eingerichtet und von Oktober bis Mai geöffnet. Um Rekonvaleszenten nach schweren inneren Krankheiten, die früher häufig in die Heimat beurlaubt wurden, eine gesicherte Rekonvaleszenz zu bieten und die in dieser Zeit erhöhte Disposition für Tuberkulose zu bekämpfen, bestehen in der deutschen Armee Genesungsheime (zur Zeit 13 mit über 700 Betten), die ihren Zweck glänzend erfüllen.

Auch für Unteroffiziersfrauen und -kinder kann zur Zeit durch Aufenthalt in Genesungsheimen im Gebirge und an der See, die privater Wohltätigkeit ihre Entstehung und der Medizinalabteilung ihre ärztliche Versorgung verdanken, manches auf dem Gebiet der Verhütung tuberkulöser Erkrankungen geschehen.

Dies sind in kurzem die Grundzüge, nach denen in unserer Armee die Verhütung und Bekämpfung der Tuberkulose vor sich geht. Sie basieren auf der grundlegenden Koch'schen Entdeckung des Tuberkelbazillus als Erreger der Tuberkulose und tragen dem infektiösen Charakter der Tuberkulose voll Rechnung. Dass bei der Durchführung dieses Gesichtspunktes die hygienischen Massnahmen hinsichtlich Staubverhütung, Abfallbeseitigung, Spuckverbot, Ventilation eine grosse Rolle spielen, ist selbstverständlich. Sind doch Sonnenlicht und Reinlichkeit unsere grössten Bundesgenossen im Kampf wie gegen die Infektionskrankheiten überhaupt, so auch insbesonders gegen die Tuberkulose. Daher hat, um nur neuere Massnahmen noch kurz

zu erwähnen, die Verwendung von staubbindenden Oelen in den Bureaus, und in letzter Zeit auch für die Fussböden der Exerzierhäuser an Umfang zugenommen. Für die Körperpflege der Soldaten sind ferner neben den, das ganze Jahr benutzbaren Brausebädern, Licht- und Sonnenbäder, wenigstens in den Garnisonen, in denen es im Sommer an Badegelegenheit im Freien fehlt, versuchsweise eingeführt. Auch Vorschläge vor dem Dienst, morgens nach dem Aufstehen einige Minuten Nacktgymnastik zur Abhärtung der Haut zu treiben, sind gemacht worden. Eine Möglichkeit, Infektionskeime in die Kasernements einzuschleppen bilden auch jetzt noch in den Kasernen—wenn auch meist in besonderen Unteroffizierfamilienwohnhäusern—wohnender Familienangehörigen der Unteroffiziere und Kasernenunterbeamten. Um auch diese Möglichkeit der Einschleppung von Tuberkuloseherden in die Kasernements zu verhindern, wäre meines Erachtens bei Verheiratung von Unteroffizieren ein Gesundheitsattest der Braut seitens der Militärverwaltung zu fordern. Auch die im Kantinenverkaufsbetrieb beschäftigten Personen müssten durch ärztliches Attest ihre Gesundheit nachzuweisen haben.

The Prevention of Tuberculosis in the German Army.—(SAAR.)

In the German army tuberculosis has gradually diminished by about 42 per cent. during the past twenty years (from 3.3 per thousand to 1.9 per thousand of the effective force). During the same time there has been a reduction of 35 per cent. (2.3 per thousand to 1.5 per thousand of the effective strength) in the cases of tuberculosis of the upper air-passages and of the lungs.

The guiding principles in the prevention of tuberculosis in the German army have been as follows:

1. Refusal to accept prospective recruits suspected of tuberculosis. When there are positive signs of tuberculosis associated with a history of a former illness of a suspected tuberculous nature, and a corresponding physique (habitus paralyticus, thorax piriformis, floating tenth rib), this is to be regarded as a cause for rejection.

2. In case recruits suspected of tuberculosis have been enlisted, they should be carefully examined by means of the newer diagnostic methods (*x*-ray, subcutaneous and conjunctival (tuberculin tests), and tuberculosis is discovered, the men should at once be discharged.

3. If a recruit during his formative period steadily loses weight, his lungs should be carefully examined for tuberculosis, and under certain circumstances the man should be kept under observation in the hospital.

4. Tuberculous soldiers should be kept in hospital until the time of their discharge from the army. If possible, they should be treated in special tuberculosis wards.

5. There are two other precautions that would contribute to the prevention of tuberculosis:

(*a*) The systematic prevention of dust and precautions against catching cold.

Dust is prevented by sprinkling the floors of offices and armories with a dust-binding oil (dustless oil, Westrumit).

Colds may be prevented by hardening the men by means of regular douching, and the introduction of so-called naked gymnastics in the morning after rising, the establishment of light- and sun-baths, at least in barracks where there is no opportunity for bathing in the open air.

(*b*) By avoiding the introduction of tuberculosis into the barracks by the families of non-commissioned officers, etc. If a non-commissioned officer desires to marry, he should be obliged to furnish a medical certificate of his prospective bride. Persons engaged in the canteen traffic must show a medical certificate that they are free from tuberculosis.

La prevención de la tuberculosis en la Armada Alemana.—(Saar.)

En la Armada Alemana la tuberculosis ha disminuido en cerca de un 42% durante los ultimos veinte anos, (de un 3.3 por mil a 1.9% por mil de las fuerzas efectivas). Durante el mismo tiempo ha habido una reducción de un 35% (2.3 por mil a 1.5% por mil de las fuerzas efectivas), en los casos de tuberculosis de la parte superior del aparato respiratorio y de los pulmones.

Las guias principales en la prevención de la tuberculosis en la Armada Alemana son las siguientes:

1. Rehusar la admision de los reclutas sospechosos de tuberculosis. Cuando existen signos positivos de tuberculosis con una historia sospechosa de enfermedades de naturaleza tuberculosa y un físico correspondiente (habitos paraliticos, torax piriforme, la decima costilla flotante), esto es conciderado como una causa para no ser admitido.

2. En los casos en que las reclutas sospechosos han sido admitidos, estos son examinados por medio de los métodos mas modernos, (los rayos X, la prueba subcutanea y oftálmica de la tuberculina), y si la tuberculosis se descubre al soldado se le da inmediatamente de baja.

3. Si un recluta, durante su periodo de formación, perdiere constantemente de peso, sus pulmones son cuidadosamente examinados, y bajo ciertas circunstancias el soldado es guardado bajo una constante observación en el hospital.

4. Los soldados tuberculosos son guardados en el hospital hasta el tiempo

de su baja. Si posible, éllos son tratados en las salas especiales para los tuberculosos.

5. Hay otras dos precauciones que contrubuyen a la prevención de la tuberculosis, estas son:

(*a*) La prevención sistemática del polvo en la oficina y en los cuarteles por medio de la irregación de aceite en el suelo, y por medio de guardarse contra los refrios.

(*b*) El aumento de la resistencia por medio de las duchas y la introducción de los ejercicios gimnásticos con el cuerpo desnudo en la mañana al levantarse, el establecimiento de baños de aire y sol, a lo menos en los cuarteles en donde no hay oportunidad de bañarse al aire libre; evitando la introduccion de la tuberculosis en los cuarteles por las familias de los oficiales no comisionados, etc. Si un oficial no comisionado desea casarse, éste deberá presentar el certificado de Salud a la novia firmado por un medico. Las personas empleadas en el tráfico de la cantina deberán presentar un certificado del médico de que estan libres de la tuberculosis.

DISCUSSION.

Col. George E. Bushnell (Fort Bayard, New Mexico): Dr. Saar is to be congratulated on the remarkably good showing which is made by the German army with respect to the incidence of tuberculosis in recent years. The weighing of soldiers, particularly of suspects, is much to be commended, as not only a simple, but also a very effective, means of detecting cases likely to prove to be tuberculous.

The admission rate for tuberculosis of the army of the United States stands between that of Germany and France, more nearly approaching the latter. The ratio per thousand of mean strength of admissions for pulmonary tuberculosis was, from 1898 to 1904 inclusive, 4.34; for 1906, 4.50. The ratios of admission for this disease were declining before the Spanish War. Thus the ratio in 1896 was 1.59; for 1897, 1.97. In 1898 it increased to 2.77, and since that year it has always been more than 4 per 1000. It is quite apparent that the increase was coincident with the entrance of the army into tropical service, and there can be no doubt that such service has played an important part in the increase of pulmonary tuberculosis. A comparison between the statistics of this disease in the Philippines and in the United States does not, however, show the difference in favor of the cooler climate that might be expected. The Philippine scouts showed in 1906 a ratio of 8.62 per thousand. This is the only organization from which statistics are available which serves continuously in the tropics. As it is made up, however, of Filipinos, the difference in race must be allowed for. The colored troops show a much greater susceptibility to pulmonary tuberculosis than the

whites, their admission ratio for 1906 being 7.51 per thousand. A marked difference between the German and the American army is to be found in the mode of recruitment. Whereas the German army is composed of the flower of the nation's youth, the American army, in which enlistments are voluntary, is obliged to come into competition with the inducements offered by civil life. When the country is prosperous, it is extremely difficult to obtain the material desired. The recruiting officers are often forced to accept relatively undesirable recruits for lack of better. Fischer* ascribes the higher rates of the French army to a similar cause; that is, the quota demanded yearly from the stationary population is so great that it is necessary to accept men of defective physique. Another reason for the relatively high rate of the American army must be sought in defective physical examinations. Recruited, as our army is, over a vast territory, it is necessary often to employ physicians whose qualifications cannot be well known. There has been so much complaint of the poor quality of recruits that it has recently been ordered that all recruits before final acceptance shall be reëxamined by medical officers of the army. It is hoped that this provision will lead to improvement, but the change is so recent that its effect has not yet become apparent in the statistics.

In conclusion, I desire to state my strong conviction that the development of pulmonary tuberculosis is not due to any appreciable extent to defective hygienic conditions in our army, but almost entirely to the enlistment of men already affected with masked tuberculosis.

* "Die Lungen-Tuberkulose in der Armee."

DIE TUBERKULOSE UND IHRE BEKÄMPFUNG IN DER KAISERLICH-DEUTSCHEN MARINE UND IN DEN DEUTSCHEN SCHUTZGEBIETEN.

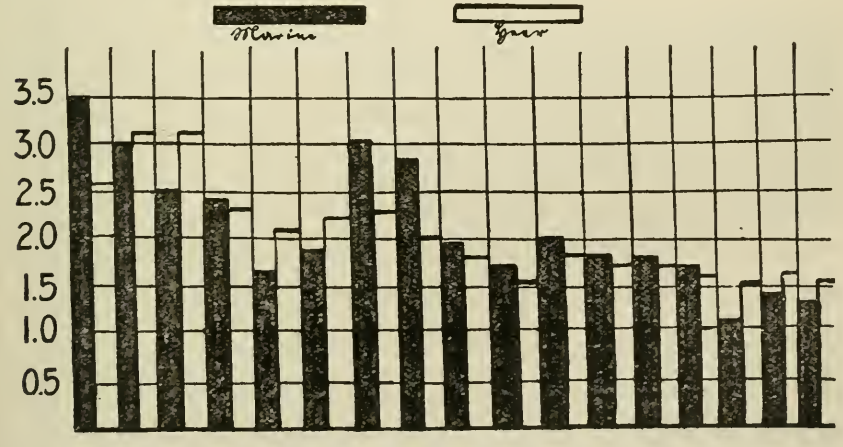
Von Oberstabsarzt Dr. Kirsch,
Berlin.

Während vor etwa 20 Jahren die Erkrankungsziffer an Tuberkulose in der kaiserlich-deutschen Marine noch ziemlich hoch war, ist in den letzten Jahren ein erheblicher Rückgang der Tuberkulose zu verzeichnen.

Es erkrankten auf 1000 Mann in den Jahren 1889–90, 1905–06:

	1889 –90	1890 –91	1891 –92	1892 –93	1893 –94	1894 –95	1895 –96	1896 –97	1897 –98	1898 –99	1899 –00	1900 –01	1901 –02	1902 –03	1903 –04	1904 –05	1905 –06
An Tuberkulose überhaupt	4.3	4.6	3 4	3.3	2.5	2.7	3.7	4.0	2.5	1.9	2.1	2.1	2.4	2.2	1.8	1.8	1.6
An Lungentuberkulose..	3.5	3.0	2.5	2.4	1.6	1.8	3.0	2.8	1.9	1.7	2.0	1.8	1.8	1.7	1.1	1.4	1.3

Vergleicht man den Zugang an Tuberkulose in der kaiserlichen Marine mit dem im deutschen Heere, so ergiebt sich Folgendes:



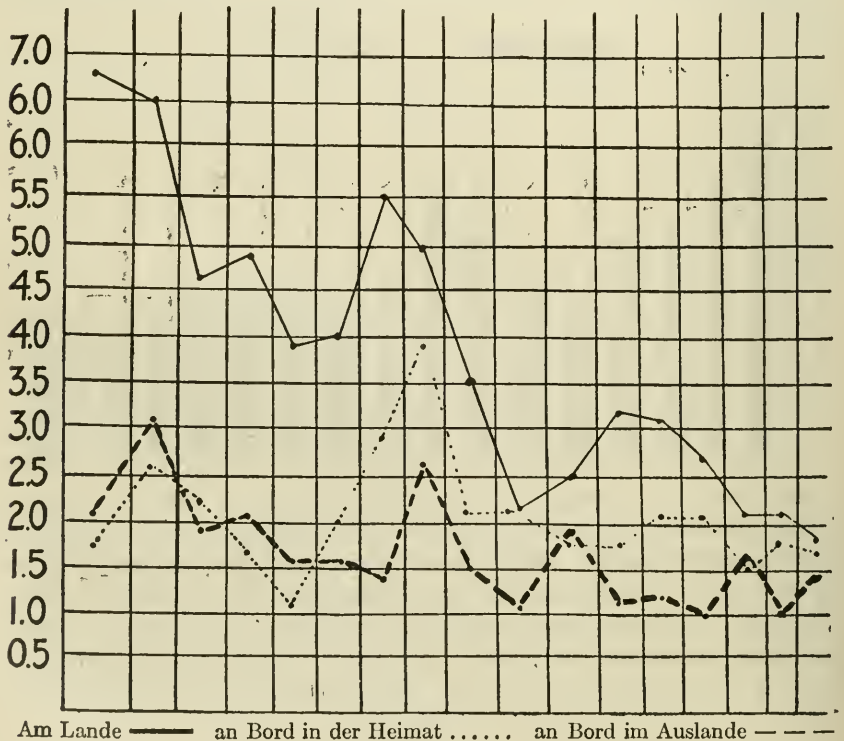
Aus diesen Zusammenstellungen geht hervor, dass die Tuberkulose in der deutschen Marine ebenso wie in der Armee eine allmählige, aber deutlich nachweisbare Abnahme zeigt. Dass im Durchschnitt die Erkrankungen an Tuberkulose in der kaiserlichen Marine etwas höher sind, als im deutschen Heer, liegt daran, dass klimatische und Witterungseinflüsse bei der Marine häufiger Erkältungskrankheiten hervorrufen und so auch häufiger den Ausbruch einer Tuberkulose begünstigen. Die hohe Erkrankungsziffer an Tuberkulose bei

der Marine in den Jahren 1889–91 stand mit einer Influenzaepidemie und die Steigerung an Erkrankungen an Tuberkulose in den Jahren 1895–96 mit den schroffen Witterungsverhältnissen der Winter während dieser Jahre in Zusammenhang, in denen in Folge der nasskalten Witterung auch sehr zahlreiche Bronchialkatarrhe und Lungenentzündungen zur Behandlung kamen. Bemerkenswert ist die Tatsache, dass der Zugang an Tuberkulose bei den Marineteilen am Lande am höchsten war, und zwar waren die Marineteile der Ostseestation durchschnittlich mehr beteiligt (5.3%), als die der Nordseestation (4.5%). Weniger zahlreich als am Lande war der Zugang an Tuberkulose an Bord in den heimischen Gewässern und am geringsten an Bord im Auslande, wie nachfolgende Tabelle zeigt:

Es erkrankten auf 1000 Mann in den Jahren 1889–90, 1905–06:

	1889 –90	1890 –91	1891 –92	1892 –93	1893 –94	1894 –95	1895 –96	1896 –97	1897 –98	1898 –99	1899 –00	1900 –01	1901 –02	1902 –03	1903 –04	1904 –05	1905 –06
Am Lande ...	6.8	6.5	4.6	4.9	3.9	4.0	5.5	5.0	3.5	2.2	2.5	3.2	3.1	2.7	2.1	2.1	1.9
An Bord in der Heimat	1.8	2.6	2.3	1.7	1.1	2.0	2.9	3.9	2.2	2.2	1.8	1.8	2.1	2.1	1.5	1.8	1.7
An Bord im Auslande ..	2.1	3.1	1.9	2.1	1.6	1.6	1.4	2 7	1.5	1.1	1.9	1.2	1.3	1.0	1.6	1.0	1.4

Eine zeichnerische Darstellung dieser Ziffern giebt folgendes Bild:



Der Grund der höheren Erkrankungsziffer an Tuberkulose an Land und an Bord in der Heimat ist nach den Sanitätsberichten in erster Linie auf die schroffen Witterungsverhältnisse an Land und an Bord in der Heimat zurückzuführen, in Folge derer weit mehr als an Bord im Auslande Erkältungskrankheiten auftreten, die ihrerseits die Entstehung einer Tuberkulose begünstigen. Andererseits wird man zugeben, dass die für das Ausland bestimmte Besatzung aus ausgesuchten Leuten besteht, so dass ein Teil von schwächlichen Leuten zurückbleibt.

Von den an Tuberkulose Erkrankten waren etwa 25% erblich belastet, bei 45% der Fälle fehlten nähere Angaben, während 30% als nicht erblich belastet bezeichnet wurden.

Bei etwa einem Drittel der an Tuberkulose Erkrankten bestand schon bei Beginn der Erkrankung ein phthisischer Habitus, und in einem Drittel der Fälle waren früher Erkrankungen der Athmungsorgane während der Dienstzeit und in der Zeit vor der Einstellung vorhergegangen.

Auf die verschiedenen Besatzungsteile verteilt sich die Erkrankungsziffer wie folgt:

66% der Fälle kamen im Durchschnitt auf das seemännische Personal.
19% der Fälle kamen im Durchschnitt auf das Maschinenpersonal.
15% der Fälle kamen im Durchschnitt auf Handwerker, Sanitätsmannschaften, Köche, Stewards.

Die grosse prozentuelle Beteiligung des seemännischen Personals an der Erkrankung an Tuberkulose liegt einmal daran, dass dasselbe mehr als das übrige Erkältungskrankheiten ausgesetzt ist, deren Entstehung noch obendrein durch die, Hals und Brust freilassende Uniformtracht begünstigt wird, zumal da ein grosser Teil der Mannschaft an diese Tracht nicht gewöhnt ist. Es kommt noch hinzu, dass der überwiegende Teil des seemännischen Personals von Beruf früher Fischer und Schiffer ist, von denen es feststeht, dass sie unter schlechten hygienischen Verhältnissen leben und relativ viel an Tuberkulose leiden.

Auffallend ist es, dass das Maschinenpersonal, das sehr anstrengender Tätigkeit und den Schädigungen kohlenstaubhältiger Luft ausgesetzt ist, verhaltnismässig wenig an Tuberkulose erkrankt. Vielleicht ist die Annahme gerechtfertigt, dass der eingeathmete Kohlenstaub die Lunge gleichsam gegen eine Erkrankung an Tuberkulose schütze, ähnlich wie bei den Kohlengrubenarbeitern, welche unter den industriellen Arbeitern am seltensten an Tuberkulose erkranken.

Die Frage, ob die Unterkunftsverhältnisse an Bord und in den Kasernen an der Küste für die Verbreitung der Tuberkulose unter den Mannschaften eine Rolle spielen, ist zu verneinen. Wenn schon bei der Armee nach den umfangreichen statistischen Erhebungen die Kasernen als ein Herd für die Weiterverbreitung der Lungentuberkulose nicht angesehen werden können,

so gilt das noch viel mehr für die Marine, deren grössere Hälfte der Besatzung an Bord untergebracht ist, wo die Unterkunftsräume in einem reinen und staubfreien Zustande dauernd gehalten werden können. Zahlreiche Untersuchungen haben ergeben, dass selbst der Staub der von Tuberkulösen innegehabten Schiffsräume frei von Tuberkelbazillen war. Es hat sich auch bisher eine unmittelbare Ansteckung an Bord nicht ermitteln lassen, wenn man von einigen wenigen Fällen absieht, in denen Sanitätsmannschaften bei der Pflege Tuberkulöser an Tuberkulose erkrankten. Sehr zahlreich sind dagegen die Gelegenheiten, bei denen die Seeleute im Verkehr mit der Hafenbevölkerung des In- und Auslandes der Ansteckung mit Tuberkulose ausgesetzt sind. Dass die relativ räumlich beschränkten Unterkunftsverhältnisse an Bord gewisse Gesundheitsstörungen hervorrufen, und so eine gewisse Disposition zur Tuberkulose setzen können, wird man zugeben können. Andererseits aber werden diese Nachteile wieder durch den Umstand aufgehoben, dass die Seeleute den grössten Teil des Tages im Freien zubringen.

Ebenso wie in der Armee war auch in der Marine der Zugang an Tuberkulose am häufigsten während des 1. Dienstjahres, weniger im 2. und 3. Dienstjahre, während nach dem 3. Dienstjahre wieder mehr Erkrankungen vorkommen. Die Statistik hat ferner ergeben, dass die Tuberkulose am häufigsten unter 20 und nach dem 23. Lebensjahre befällt.

Hervorgehoben sei, dass die Lungentuberkulose im Auslande im tropischen oder subtropischen Klima im allgemeinen schnell verläuft und häufig binnen wenigen Wochen zum Tode führt, nachdem sich das Bild einer floriden Phthise entwickelt hat. Der Grund dieses schnellen Verlaufes ist darin zu suchen, dass in den Tropen die Verdauungsorgane meist daniederliegen und eine roborierende Diät verhindern.

Worin besteht nun die Bekämpfung der Tuberkulose? In erster Linie kommt das Fernhalten tuberkulös disponierten Ersatzes in Betracht.

Die Voraussetzung der Tauglichkeit zum Marinedienst ist an strenge Forderungen geknüpft, welche in der Dienstanweisung zur Beurteilung der Dienstfähigkeit für die Marine festgelegt sind. Wenn trotz der strengen Vorschriften es nicht immer verhütet werden kann, dass Leute eingestellt werden, die den Krankheitskeim in sich tragen, also tuberkulös sind, so liegt es meist daran, dass die amtlichen Ermittlungen, die vor der Einstellung des Mannes zu erheben sind, bis jetzt noch sehr lückenhaft sind, und die namentlich bezüglich des aus der seemännischen Bevölkerung stammenden Ersatzes sehr genau sein müssten. Ist doch nach den Untersuchungen von Nocht die Tuberkulose unter den Seeleuten der Handelsflotte sehr verbreitet, und waren von allen in den Jahren 1888–1893 in deutschen Krankenhäusern gestorbenen Seeleuten 40% tuberkulös. Die Ursache des häufigen Vorkommens der Tuberkulose in der Handelsflotte liegt in den zu geringen An-

forderungen, welche an die Brauchbarkeit dieser Leute seitens der Kauffarteischiffe gestellt werden, in den mangelhaften Unterkunftsverhältnissen, die Gesundheitsstörungen herbeiführen müssen, in der wohl oft erst späten Erkennung der Krankheit, da Mikroskope zum Nachweis von Tuberkelbazillen fehlen und in mangelhafter Isolierung und später Entlassung des Kranken. Eine staatliche Ueberwachung in dieser Hinsicht würde, wenn sie diese Missstände beseitigte, lohnende Resultate ergeben, denn es würde die Tuberkulose in der Handelsflotte auf ein Minimum reduziert werden und so auch eine weitere Abnahme der Tuberkulose in der Kriegsmarine eintreten. Ferner aber würde eine Beseitigung genannter Missstände als weiterer Faktor im Kampfe gegen die Tuberkulose unter der Civilbevölkerung zu betrachten sein.

An dieser Stelle möchte ich die zielbewusste Tätigkeit des deutschen Schulschiffvereines besonders hervorheben, der es sich angedeihen sein lässt, einen tüchtigen Nachwuchs für die Besatzung unserer Handelsflotte heranzubilden, wofür bis jetzt zwar nur ein Schulschiff zur Verfügung steht, aber demnächst auch ein zweites in Dienst gestellt werden wird, dessen Kosten durch private Mittel gedeckt sind. Diese Bestrebungen des Schulschiffvereines finden in unseren Reederkreisen uneingeschränkte Anerkennung und im Auslande vielfach Nachahmung.

Ich komme nun zu den ärztlichen Massnahmen, die nach der Einstellung der Leute platzgreifen. Werden bei der Einstellung Leute als zweifelhaft tauglich befunden, so werden sie zunächst nur versuchsweise eingestellt. Ergiebt eine längere ärztliche Beobachtung, dass der Eingestellte den dienstlichen Anstrengungen nicht gewachsen ist, so wird derselbe als dienstunbrauchbar entlassen. Ferner werden bei den regelmässig vorgenommenen Gesundheitsbesichtigungen an Bord und an Land insbesonders die früher versuchsweise Eingestellten sowie diejenigen, die schwere Krankheiten überstanden haben, einer genaueren Untersuchung unterzogen. Besondere Untersuchungen finden sodann statt vor Antritt eines Kommandos an Bord, zum Schwimmunterricht, zum Taucherdienst, sowie vor Antritt eines längeren Auslandskommandos.

Behufs Ueberwachung des Ernährungszustandes der Seeleute werden regelmässige Wägungen vorgenommen, bei den Mannschaften des 1. Jahrganges, den Schiffsjungen, den Kadetten, ausserdem noch Messungen der Körperlänge und des Brustumfanges, wobei Tuberkuloseverdächtige leicht ermittelt werden können.

Die Kost ist reichlich und abwechslungsreich. Die allgemeine Körperpflege ist, dank der reichlichen Bade- und Wascheinrichtungen aller neueren Kriegsschiffe, eine ausgezeichnete. Die Schiffsräume sind jetzt auf allen Schiffen mit künstlichen Lüftungsvorrichtungen versehen, durch die die verdorbene Luft abgesaugt und frische Luft eingetrieben wird. Dass auch

eine peinliche Sauberkeit der Unterkunftsräume und Aufstellung von Spucknäpfen, auf ärztliche Ueberwachung der Nahrungsmittel gehalten wird, sei noch hinzugefügt.

Von einschneidender Bedeutung ist die sofortige Isolierung eines an Tuberkulose Erkrankten sowie die Desinfektion der von ihm benützten Gegenstände (Hängematte, Kleidungsstücke, Wäsche). Die Erkrankten werden so bald wie möglich dem nächsten Marinelazarett überwiesen und als dienstunfähig entlassen. Bei Erkrankungen an Bord im Auslande erfolgt unter Umständen eine Ausschiffung und umgehende Heimsendung.

Für die Diagnose werden vereinzelt Alttuberkulineinspritzungen verwendet. Die Behandlung war vorwiegend eine hygienisch-diätetische. Vielfach wurde von den Freiliegekuren Gebrauch gemacht. Mit gutem Erfolge wurde auch Guajacolcarbonat in steigender Dosis angewendet. Günstig beeinflusst wurden auch in Kiel einige mit Neutuberkulin behandelte Fälle. Mehrfach wurden Kranke vor ihrer Entlassung Lungenheilstätten überwiesen. In geeigneten Fällen kamen vor der Entlassung auch Badekuren zur Anwendung.

Eine weitere Verminderung der Tuberkulose in der kaiserlichen Marine würde durch eine Erweiterung ihrer Bekämpfung erreicht werden. Die hiefür wünschenswerten Forderungen sind am Schluss in den Leitsätzen enthalten.

Was das Vorkommen von Tuberkulose in den deutschen Schutzgebieten anbetrifft, so fehlt dieselbe leider in keiner deutschen Kolonie. In welchem Umfange die Tuberkulose bei den Eingeborenen der deutschen Schutzgebiete vorkommt, ist nicht bekannt, da statistische Ermittelungen nur über die weisse Bevölkerung und über die Schutztruppe vorliegen. Da an den Küsten aller Meere, die für den internationalen Seeverkehr in Betracht kommen, Tuberkulose vorkommt und eingeschleppt wird, so liegt es auf der Hand, dass auch nach dem Inneren der Schutzgebiete Tuberkulose eindringen und hier weiter verbreitet werden kann, zumal da die farbigen Rassen für Tuberkulose sehr empfänglich sind. So wird in Samoa, den Karolinen und in Deutsch-Neu-Guinea bei den Farbigen, namentlich den Plantagenarbeitern, die sich meist aus Chinesen, Malayen und Melanesiern zusammensetzen, Tuberkulose beobachtet, während diese bei der weissen Bevölkerung nur äusserst selten anzutreffen ist. Auch in Togo kommt die Tuberkulose, wenn auch seltener, zu Beobachtung. An der Küste von Kamerun ist die Tuberkulose einheimisch. Die Duallaleute erkranken zwar wenig, aber die aus dem Hinterlande kommenden Farbigen erkranken recht häufig an Tuberkulose. Bei den weissen Angehörigen der Kameruner Schutztruppe ist in den letzten Jahren Tuberkulose nicht vorgekommen, und bei den Europäern, deren Kopfzahl durchschnittlich 800 betrug, sind während der letzten 6 Jahre im Ganzen nur 2 Fälle von Tuberkulose zur Beobachtung

gelangt, welche aus der Heimat mitgebracht war. Selten ist die Tuberkulose in unserer grössten Kolonie, in Deutsch-Ostafrika. Sind doch in dem Berichtsjahr 1903–04 auf allen Stationen, deren farbige Bevölkerung etwas über 4 Millionen betrug, nur 10 farbige Tuberkulöse ermittelt worden, ein sehr günstiges Ergebnis. In dem gleichen Jahre starben in Preussen von 10,000 Lebenden schon allein 19.3 an Tuberkulose. In den letzten 6 Jahren ist bei den weissen Angehörigen der deutsch-ostafrikanischen Schutztruppe Tuberkulose nicht aufgetreten, bei der farbigen Schutztruppe im ganzen nur 8 Fälle. Bei einer Durchschnittsstärke der farbigen Schutztruppe von 1900 Mann beträgt daher die durchschnittliche Erkrankungsziffer für die farbige Schutztruppe Deutsch-Ostafrikas nur 0.7%. Bei der europäischen Civilbevölkerung kamen in Deutsch-Ostafrika während der letzten 6 Jahre bei einer durchschnittlichen Kopfzahl von 1500 im ganzen nur 4 Fälle von Tuberkulose vor, eine Erkrankungsziffer von 0.4%. Dank seines ausgezeichnet günstigen Klimas nimmt Deutsch-Ostafrika bezüglich des Vorkommens von Tuberkulose den letzten Platz in unseren Kolonieen ein. Nach den Berichten von Aerzten, die viele Jahre in Deutsch-Südwestafrika tätig waren, ist die Tuberkulose im inneren dieser Kolonie bei den Eingeborenen nicht beobachtet worden, während sie an der Küste unter den Farbigen vereinzelt vorkommt, wo die Tuberkulose in die Hafenorte nicht nur von landenden Europäern, sondern auch von den zahlreich aus der Liberiarepublik eingeführten Negern, die bei den Schiffsladungslöschungen beschäftigt sind, eingeschleppt werden kann. Bei der Schutztruppe ist die Tuberkulose in Friedenszeiten nicht beobachtet worden. Wenn während des letzten Krieges mehrere Tuberkulosefälle bei der deutschen Schutztruppe vorkamen, so lag dies daran, dass mit dem Feldzug kolossale Strapazen und Entbehrungen verbunden waren, welche im Vereine mit Typhus, Ruhr, Skorbut oder Malaria den Boden für den Ausbruch einer Tuberkulose vorbereiteten, deren Keim die Erkrankten aus der Heimat mitbrachten. Es sei noch erwähnt, dass bei dem relativ starken Bedarf an Streitern, der nur durch Freiwillige der einzelnen Truppenteile gedeckt werden konnte, eine allzu peinliche Auslese nicht hat vorgenommen werden können.

Die bei der weissen Civilbevölkerung von Deutsch-Südwestafrika vereinzelt zur Beobachtung gekommenen Tuberkulosefälle waren aus der Heimat eingeschleppt. Es hat sich nun gezeigt, dass die Tuberkulose bei den befallenen Leuten, obwohl sie sich zum Teil wenig Schonung auferlegten, meist überaus günstig verlief. Der Grund hiefür liegt in dem herrlichen Klima von Deutsch-Südwestafrika, in dem Erkältungskrankheiten fast unbekannt sind. Deutsch-Südwestafrika, das bis auf einen 50–100 Kilometer breiten Küstenstrich ein trockenes, bis 1600 Meter hohes Steppenhochland darstellt, ist bis auf das nördlich gelegene Owamboland subtropisch; es hat bis auf geringe Ausnahmen während der Regenzeit eine starke Sonnenbestrahlung

und selbst im Sommer eine erfrischende Abkühlung zur Nachtzeit. Dazu kommt, dass ein grosser Teil des Landes malariafrei ist. Diese hervorragenden klimatischen Vorzüge machen Deutsch-Südwestafrika zur Aufnahme von Lungenkranken besonders geeignet.

Leitsätze.

1. Die im Durchschnitt höhere Erkrankungsziffer an Tuberkulose in der kaiserlichen Marine als in der Armee ist in erster Linie darauf zurückzuführen, dass klimatische Einflüsse häufiger Erkältungskrankheiten hervorrufen als in der Armee und so mehr den Ausbruch einer Tuberkulose begünstigen.

Die Tuberkulose zeigt in der Marine ebenso wie in der Armee eine stetige Abnahme.

2. Da ein grosser Teil des Personals der Kriegsmarine sich aus früheren Angehörigen der Handelsflotte zusammensetzt, so würde eine staatliche Kontrolle der körperlichen Tauglichkeit vor Eintritt in den Dienst der Handelsflotte sowie der Unterkunftsverhältnisse an Bord der Kauffarteischiffe viel dazu beitragen, die Disposition dieses Personals zur Tuberkulose zu verringern und so auch die Erkrankungen an Tuberkulose in der Kriegsmarine zu vermindern.

3. Die amtlichen Ermittlungen vor der Einstellung der Seeleute in die kaiserliche Marine müssten noch genauer erhoben werden, als bisher. Erblich Belastete sollten nur dann eingestellt werden, wenn sie sehr kräftig sind und nicht vorher an Erkrankungen der Athmungsorgane gelitten haben. Auch Leute, die nicht erblich belastet sind, aber wiederholt an Erkrankungen der Athmungsorgane gelitten haben, wären zweckmässig nicht einzustellen.

4. Behufs Vermeidung von Erkältungskrankheiten würde es sich empfehlen, zum Schutze des Halses und der Brust eine Aenderung des Schnittes der Uniform der Seeleute ins Auge zu fassen.

Das Personal, dessen Tätigkeit sich in den unteren Schiffsräumen abspielt, ist täglich zum Dienst an Deck (Turnen, Exerzieren) heranzuziehen.

5. Die Zahl der bei der deutschen Schutztruppe zum Ausbruch kommenden Tuberkulosefälle würde vermindert werden, wenn die Angehörigen der Schutztruppe nicht wie bisher einzelnen Truppenteilen, sondern einer ständigen Kolonialtruppe entnommen würden, wo die überwachenden Organe in der Lage wären, Minderwertige rechtzeitig auszuscheiden.

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Tuberculosis and its Prevention in the German Navy.—(KIRSCH.)

1. The high percentage of tuberculosis in the marine as compared with the army is due to the fact that diseases due to cold are more frequent in the navy, and more favorable to the development of tuberculosis. In the navy, tuberculosis is constantly diminishing.

2. As a large proportion of the personnel of the navy is recruited from the merchant marine, governmental supervision of applicants before they are admitted to the merchant marine and inspection merchantmen will greatly assist in diminishing the disposition of the personnel to tuberculosis, and incidentally the number of those who develop the disease after they have entered the navy.

3. The official investigation should be more searching than it has been in the past. Individuals with a tuberculous family history should not be accepted unless they are unusually vigorous and have never suffered from disease of the respiratory organs. Applicants who have repeatedly suffered from disease of the respiratory organs should not be accepted.

4. In order to avoid diseases due to cold, the cut of the uniform should be modified so as to afford better protection to the throat and chest. The men whose service keeps them down in the hold should be daily brought on deck and put through gymnastic exercise.

5. The number of cases of tuberculosis developing in the countries under the protectorate of the German Empire could be very much diminished by establishing a permanent colonial branch of the service in which the authorities would be in a position to eliminate the physically unfit.

La Tuberculosis y su Prevencion en la Armada Alemana.—(KIRSCH.)

1. El crecido por ciento de tuberculosis en la Marina en comparacion con la Armada, obedece al hecho de que debido á las influencias climatologicas; enfermedades debidas al frio son mas frecuentes en la Marina, y tambien mas favorables al desarrollo de la tuberculosis. En la Marina, la tuberculosis disminuye constantemente.

2. Debido á que una gran parte del personal de la Marina son reclutas de la marina mercantil, la supervision del gobierno en cuanto á las aptitudes fisicas de los aplicantes antes de que estos sean admitidos al servicio de la marina mercantil y la inspecion de las condiciones de vida en los navios, asistira considerablemente en disminuir el numero de aquellos en los cuales se desarrolla la enfermedad despues que estos han entrado al servicio de la Marina.

3. La investigacion de los marineros debiera ser mas rigorosa que como lo ha sido hasta el presente. Individuos con una historia de tuberculosis en

la familia, no debieran ser aceptados, salvo el caso de que estos sean muy vogorosos y que nunca hayan padecido de enfermedades de los organos respiratorios. Individuos que han sufrido repetidamente de enfermedades de los organos respiratorios, no debieran ser admitidos.

4. A fin de evitar las enfermedades debidas al frio, el corte del uniforme de la marina debiera modificarse a fin de prestar mayor proteccion a la garganta y al pecho. Los hombres cuyo servicio les obliga á permanecer en las partes bajas del buque, debieran ser traidos diariamente á la cubierta y darles un ejercicio sistematico de gimnasia.

5. El numero de los casos de tuberculosis en los paises bajo el protectorado del Imperio Aleman, pudiera disminuirse considerablemente por medio del establecimiento de una rama permanente del servicio en donde las autoridades pudieran climinar a tiempo los fisicamente ineptos.

La tuberculose dans la Marine allemande et les Pays placés sous le Protectorat de l'Empire allemand: Mesures préventives.—(KIRSCH.)

1. Si la tuberculose est beaucoup plus fréquente dans la marine impériale que dans l'armée, il faut l'attribuer au fait que, grâce aux influences climatériques, les maladies causées par le froid y sont plus nombreuses et favorisent le développement de la tuberculose. Toutefois dans la marine, la tuberculose est en décroissance constante.

2. Comme une grande partie du personnel de la marine est recrutée dans la marine marchande, l'examen, par le gouvernement, de l'aptitude physique des candidats avant leur admisson dans la marine marchande et des navires marchands contribuera beaucoup à diminuer le nombre de ceux que la maladie atteindra après leur entrée dans la marine.

3. L'enquête officielle sur les matelots devrait être plus rigoureuse qu' autrefois. Il faudrait refuser ceux dont la famille a eu des tuberculeux, à moins qu'ils ne soient d'une santé particulièrement robuste et n'aient jamais souffert d'une maladie des organes respiratoires. Les candidats qui ont souffert à plusieurs reprises d'une maladie des organes respiratoires, ne devraient pas être acceptés.

4. Pour éviter les maladies dues au froid, il faudrait modifier la coupe de l''uniforme de la marine de manière à fournir une plus ample protection à la gorge et à la poitrine du matelot. Les hommes que leur service retient dans la cale du navire devraient être appelés chaque jour sur le pont et y faire quelque manœuvre ou exercise gymnastique.

5. On pourrait diminuer sensiblement le nombre des tuberculoses dans les pays de protectorat en y établissant une succursale coloniale permanente du service comme jadis.

DISCUSSION.

Dr. Henry G. Beyer (Washington): The problem involved in the campaign against tuberculosis in the navy may be divided into four parts: first, to keep tuberculosis out of the navy; second, to prevent its spread after it has gotten into the navy; third, to care for and cure those afflicted with it; and, fourth, to prevent naval men from carrying the disease back to their families and friends, after their term of service has expired and they are discharged.

1. The most important steps to be taken toward keeping the disease out of the navy, and from getting on board naval ships, must be taken by a carefully regulated system of recruiting. Every legitimate and legally permissible means should be taken to establish freedom from this disease in the newly enlisted recruits. Every means of physical diagnosis should be exploited, sputum examinations made, and the different tuberculin reactions applied in cases where the diagnosis from physical examination alone leaves the slightest doubt.

2. After tuberculous men have entered the service and have been sent on board ships, the next problem is to secure strict isolation in order to prevent their giving it to others. The danger of communicating a disease of this kind on board ship is so much greater than anywhere else that the measures to be taken require extraordinary vigilance to produce any effectual results. Not only is the danger of infection by direct communication through expectoration so much greater than anywhere else, but also the direct contact, which has become greater here than on shore, owing to the close association and to the intimate intercourse between the men. On one of my last ships the five cases of tuberculosis that occurred during my term of service of two years were all pulmonary forms of tuberculosis which had developed practically at the same time and were due to an undiscovered case of laryngeal tuberculosis of six months' standing, the other patients all being his messmates and playmates, and pointing, therefore, clearly to direct transmission by the spray produced by this case in coughing and talking. Contact is the next great danger which must be specially guarded against on board ship; food is the last.

3. The isolation and care of the tuberculous is not as easy on board ship as it is even in a modest home on shore. The tuberculous, therefore, should be removed from a ship as promptly as conditions and the whereabouts of the ship at the time will permit. It is a duty of the Navy Department to look out for its own tuberculous patients by hospitals and all possible means that have been devised for their care. The United States navy has established a splendid sanatorium at Fort Lyon, which it seems would answer all the modern requirements of such a sanatorium.

4. It is the duty of the naval medical department to care for tuberculous sailors until they are at least perfectly safe to be permitted to proceed home after their term of service has expired, in order that they may not prove bacillus-carriers and communicate the disease to their parents and friends.

Dr. Helm (Berlin) wished to add to the papers of Dr. Saar and Dr. Kirsch a few remarks on the manner in which the German authorities had found it possible to extend the benefits of the systems used in the German army and navy for the detection of early cases of tuberculosis to the entire German people. All persons who by means of the improved diagnostic facilities and the increased care in watching over recruits are found to be suffering from tuberculosis, as well as those soldiers who are dismissed on account of tuberculosis during their time of service, are cared for in this way, that they are referred to the civil authorities for their future care. In this way it is possible to come in touch with a large number of early cases which are readily amenable to treatment. This measure was instituted by an order of the Prussian Minister of War under date of December 31, 1906. Dr. Ferrière, of Geneva, made a similar proposal at the International Red Cross Congress, held at London in June, 1907, namely, that the Red Cross should care for soldiers and sailors discharged from service because of tuberculosis; whether this suggestion bore fruit is not known by Dr. Helm. Dr. Helm referred, for a more extensive review of this matter, to his report before the Seventh International Tuberculosis Conference, held in Philadelphia.

LE SPECULATION DU SOL DES VILLES ET LA CONTAGION TUBERCULEUSE. COMMENT PEUVENT AGIR LES VILLES.

M. Augustin Rey,
Architecte, Membre du Conseil Supérieur des Habitations, Paris.

Tout semble, dans l'organisation de nos existences modernes, s'opposer à donner de l'air et de la lumière aux habitants de nos grandes agglomérations.

La Tuberculose, qui est un produit presque direct du surpeuplement, et de l'entassement en hauteur des habitants qui est presque toujours la règle dans les grandes villes, nécessite de grands remèdes.

A envisager la question à un point de vue large, ce qui s'oppose le plus à la création des espaces nécessaires pour faire pénétrer la lumière et l'air dans l'habitation, c'est la spéculation effrénée qui s'est emparée du sol de la Cité.

Le terrain cher, forcément couvert au maximum de bâtiments, crée le surpeuplement, la maison à étages, la maison bloc sombre et sans air.

Le terrain bon marché permet seul la maison peu élevée gaie et claire, entourée de l'espace libre rêvé, la seule qui fasse vivre l'habitant en lui assurant partout dans sa demeure la lumière et le renouvellement constant de l'air pur.

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Ces considérations ont fait l'objet au Congrès d'Hygiène et de Démographie de Berlin du mois de Septembre 1907 d'une discussion qui a suivi la communication que nous avons faite sur ce sujet: "La speculation sur les terrains et l'hygiène dans nos grandes villes."

Nous avons montré que la vraie politique à adopter pour améliorer les conditions d'existence des citadins et pousser à la réserve d'espaces libres, est que dans l'intérêt général la Municipalité puisse avoir en sa possession le plus de terrains possibles. Quand, dans une entreprise, un groupe veut avoir la haute main sur sa direction, sur le prix du produit, il s'assure un nombre d'actions en rapport avec le but qu'il poursuit.

Ici l'autorité municipale qui représente les intérêts supérieurs de l'hy-

giène publique à un degré, à notre avis, autrement plus grand que l'état, a un intérêt capital à voir ce produit de toute première nécessité qu'est le terrain, ne pas augmenter de valeur dans des proportions déraisonnables. L'amélioration de la santé publique est le plus souvent à ce prix.

Pour parvenir à ce résultat, les Municipalités doivent:

1. Garder jalousement en leur possession tous les terrains qui leur appartiennent. Elles ne doivent jamais les vendre. Ceux qui ne lui reviennent pas à un prix élevé et ne sont pas destinés à la création pure et simple de parcs et de jardins publics, doivent être loués à des baux de très longue durée et aux prix les plus réduits pour faciliter la construction d'habitations peu élevées, entourées le plus possible d'espaces libres et permettant d'y loger à petits loyers la grande classe des travailleurs.

2. Saisir toutes les occasions qui se présentent pour augmenter leur domaine en achetant, suivant les circonstances, à bon marché, de nombreux terrains à grande surface.

Le Congrès de Berlin où les délégués de villes représentaient les intérêts hygiéniques de plus de 100 millions de citadins, vota, à la suite de notre communication, les conclusions suivantes que nous avions présentées et qui la terminaient:

"Le Congrès est d'avis:

"Que le noeud de la question des habitations économiques et hygiéniques des grandes villes, réside dans la considération du terrain.

"Qu'il lui parait de la plus haute importance, que pour combattre les effets de la speculation sur le sol des villes, les municipalités a qui incombent la defense des intérêts supérieurs de l'hygiène publique, s'assurent là la possession d'une étendue notable de terrains a bas prix pour en user au mieux suivant les circonstances particulières a chaque pays, pour l'amélioration rationnelle des conditions de l'habitation.

"Il considère que le type d'habitations qui réalise le mieux ce but est celui de la cité-jardin."

Le Congrès fut unanime, à la suite de nitre argumentation, à déclarer que le terrain, source de bien-être public pour la santé des habitants d'une ville lorsqu'il n'atteint pas à des prix trop élevés, peut devenir une source de misère sociale et d'aggravation du mauvais état de la santé publique, lorsqu'il fait l'objet de spéculations abusives.

En possédant d'importantes surfaces de terrains, dans la périphérie des villes et surtout dans leurs banlieues, comme Propriétaires au même titre que des particuliers, en les louant et en ne les vendant jamais, les Municipalités peuvent remédier ainsi peu à peu et sans violences, à ce fléau très moderne et qui va grandissant, la spéculation du sol. Non seulement elles peuvent préparer ainsi pour l'avenir une base raisonnable pour les expropriations d'utilité publique, élément le plus actif de transformation des

vieilles cités,—et ce point est de la plus haute importance si l'on songe qu' actuellement les Municipalités sont mises presque à la rançon lorsqu'elles sont obligées d'avoir recours à ces opérations,–mais elles se trouvent surtout en mesure d'assurer par ce moyen dans l'avenir des espaces libres considérables et inaliénables.

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La spéculation du sol a été enrayée en grande partie en Angleterre du fait d'une situation spéciale qui restreint le nombre de propriétaires à un chiffre très faible, si on le compare à celui existant dans les autres Nations du monde. Certaines villes n'ont souvent pas plus de deux propriétaires pour le sol qu'elles occupent: parfois même un seul. Il faut rechercher l'origine de cette situation privilégiée, dans la politique de Guillaume le Conquérant qui partagea le territoire conquis entre ses barons. Conservatrice par excellence, l'Angleterre que les révolutions n'ont pas troublée, n'a pas touché à ses traditions de propriété. Elle a su en faire comme l'axe de toute sa politique intérieure. Au point de vue de la Tuberculose elle a pu de ce fait, éviter un des grands obstacles de l'encombrement du sol des villes par des constructions trop élevées. La spéculation du sol a été limitée dans ce pays, à sa plus simple expression. Sauf sur quelques points du centre de certaines agglomérations, elle n'existe pour ainsi dire pas ce pays.

Un autre exemple frappant est donné par la Ville d'Ulm, dans le Wurtemberg. Les terrains considérables que possède cette Cité lui ont permis d'éviter d'une manière complète le renchérissement de son sol. Les habitations y sont peu élevées et entourées immédiatement d'espaces libres très importants; il en est résulté une mortalité générale très faible, voisine, pour le plus grand nombre de quartiers, de 10 pour mille, et une mortalité tuberculeuse très faible.

La situation de cette ville est très brillante comme conséquence.

C'est un exemple frappant de logique et de tenacité donné par cette administration auprès de la Collectivité. Elle a trouvé dans cette méthode, le moyen de faire bénéficier dans la plus large mesure, l'ensemble des citoyens des avantages qui ressortent des propriétaires de terrains.

Si dans l'avenir la hausse certaine des terrains de cette ville se produit, c'est l'ensemble des habitants de la Ville qui en bénéficieront et verront leurs charges d'impôts, actuellement très faible, diminuer encore.

* * * *

Dans les principaux pays du monde civilisé, où les dangers de l'agglomération se font de plus en plus sentir, augmentent dans une proportion grandissante la mortalité tuberculeuse, le grand intérêt est d'éviter pour leurs Cités la spéculation et les hauts prix que peuvent atteindre les terrains destinés à l'habitation.

Les difficultés que rencontrent les prescriptions sur l'Hygiène publique ont presque toujours pour point de départ le terrain et la valeur trop souvent fictive que l'on cherche à lui donner. Pour aboutir à de véritables progrès dans l'extension des espaces libres autour de l'habitation, c'est sur ce point que doit porter tout l'effort. Une Municipalité qui possède beaucoup de terrain, surtout dans les parties d'une ville qui s'étend le plus, peut espérer contrôler en quelque mesure, le marché qui fixe sa valeur.

La spéculation du sol est une des sources directes des charges d'assistance dont le Budget de nos grandes Cités voit le chiffre s'enfler d'année en année.

On commence à s'apercevoir que le terrain des agglomérations urbaines destiné à l'habitation,—nous ne parlons nullement ici de terrains destinés au commerce et à l'industrie,—n'est pas un article d'échange dont le libre marché puisse être laissé ouvert sans de graves perturbations sociales.

Nous sommes parvenus à une période de la vie des Cités où les statistiques révèlent, par leur précision de plus en plus grande, les méfaits causés par l'habitation. Ces méfaits, il faut le proclamer bien haut, trouvent leur origine fondamentale dans les agiotages dont le sol est l'objet. Ils mettent l'Architecte dans l'impossibilité, la plupart du temps, d'élever des maisons de peu d'étages et de les entourer des espaces libres indespensables.

Au point de vue de la Tuberculose, l'encombrement des habitations dans les grandes villes a été reconnu comme le facteur principal de la contagion tuberculeuse.

Les statistiques ont révélées dans différentes parties du monde, les méfaits causés par le surpeuplement, résultat du renchérissement du sol, dont nous venons de parler. Si l'on pouvait établir la proportion exacte qui incombe à ce facteur dans les ruines que la Tuberculose accumule autour d'elle, on serait peut-être étonné du prix exorbitant auquel reviennent à la Société toute entière, ces spéculations que rien n'arrête. La solution de ce problème est de la plus haute importance pour l'avenir sanitaire de nos grandes cités.

Le sol sur lequel se crée l'habitation urbaine populaire sera un jour protégé, car ce n'est que lorsque son prix est peu élevé que l'éclairage et l'aération complets du logement peuvent être obtenus. Aucun remède efficace contre la contagion tuberculeuse par l'habitation ne pourra être appliqué sans résoudre en même temps la question du terrain bon marché.

Avec la connaissance que nous avons de ce grave problème, et ce que nous avons vu dans les principales villes d'Europe, nous estimons que cette réforme dépend des pouvoirs Municipaux. Investis de la haute charge d'améliorer constamment la santé publique, il leur incombe de rechercher en tout premier lieu d'empêcher la hausse fictive du sol urbain. On pourra alors, par des méthodes scientifiques rigoureuses que nous avons développées dans de nombreux travaux, viser à l'orientation des voies publiques, à celle des bâti-

ments, qui ont pour corollaire immédiat d'augmenter l'espace libre au pourtour de la maison d'habitation.

Ce ne sont pas des parcs qu'il faut d'urgence aux habitants, c'est de l'air et de la lumière en abondance dans l'habitation elle-même. C'est le seul remède que reclament ceux qui veulent voir baisser rapidement la terrible morbidité et mortalité tuberculeuse des grands centres.

* * * *

La spéculation du sol des villes est le grand coupable de l'extension des maladies contagieuses et surtout de la Tuberculose.

Un domaine appartenant à la collectivité des citoyens doit être créé afin de lutter énergiquement contre le renchérissement scandaleux du sol dans les villes modernes.

Des modifications profondes doivent être de plus apportées au tracé des plans d'extension des grandes agglomérations modernes, en vue d'appliquer scientifiquement les principes rationnels d'orientation et d'aération à tous les bâtiments affectés à l'habitation.

FIGHTING THE SCOURGE AMONG THE INDIANS.

By Francis E. Leupp,
Commissioner of Indian Affairs, Washington.

Like most uncivilized people, the Indian is very susceptible to the diseases of the white man, especially tuberculosis. He has not behind him generations who have fought the disease; he has, therefore, little immunity from the tubercle bacillus; and the common belief is that the germ was unknown to the Indian until the Caucasian came to this continent and brought it along with other products of civilization.

In his aboriginal life the Indian followed those pursuits which produced and preserved a hardy physique. He was chiefly a hunter and trapper, a warrior, or occasionally a fisherman. His shelter was the least of his wealth. Except in a few rare instances he developed no architectural skill, not even among the tribes of the north, where it seems as if the long, hard winters, would naturally have brought into the scheme of his evolution a storm-resistant type of dwelling. He moved about from place to place, following his game, seeking his enemies, or camping to suit his temporary convenience and pleasure. He thus left his accumulated filth behind him. Of clothing he wore little at any time, and often none.

Times have changed. When the upbuilding of the west made it necessary to curb his restlessness, he was placed on a reservation set apart for his tribe and forbidden for the future to wander at will. The game which he pursued for a livelihood was destroyed or driven away so as to keep him out of temptation, and if there were any remnant left, it was protected by law. His present tendency, fostered by a paternal government, is toward a permanent home. He has learned to build himself a cabin or little house. When the cold season comes, he nails down the few windows, stops the cracks in the walls with old rags, and sets up an American stove, which he heats red. Here, in one or two rooms, for a part of the year at least, he lives with his numerous family, sleeping, eating, and entertaining in narrow quarters, and expectorating everywhere with a frequency which is not exclusively Indian.

He is adopting civilized dress, careless whether he wears all his shirts at one time or in succession. He is rapidly exchanging his hard bed on the floor or the ground for the American iron bedstead with woven wire springs, which soon become soft and yielding to his body. His food—once the fish

of the stream and sea or the wild meat of the plains and mountains, berries, acorns, or a few vegetables that could be quickly and easily raised by a squaw —has also changed. In rare instances the government may provide rations, but the supplemental articles are procured at the trader's, where the Indian too frequently buys poor flour, canned fruit of a low grade, indifferent coffee, and so on.

Perhaps the Indian is an allottee and leases his land, living off the proceeds. This gives him months of idleness; for, his former occupations having gone, he has not yet mastered any to take their place. Besides all these causes for enervation, the bad liquor which the white man taught him to drink, to say nothing of the other vices which follow in the wake of civilization, contributes in large measure to his further physical undoing.

In general, these are the conditions which afford a fruitful soil for the spread of tuberculosis among a people who are exceedingly susceptible to it, to whom cleanliness means nothing, and to whose vocabulary sanitation and hygiene are unknown terms. What the actual prevalence and mortality are, it is difficult to state. The Indian Office has from time to time collected statistics from its agents and physicians in the field, but they cannot be accepted as final. They bear out the testimony of the traveler, the missionary, and the occasional student, that the disease is the greatest single menace to the Indian race.

Recently the Indian Office and the Smithsonian Institution coöperated in making a special inquiry. Dr. Ales Hrdlicka, assistant curator in charge of the division of physical anthropology in the National Museum, undertook the examination of every individual member of one hundred families representative of four or five tribes. He was assisted by a bacteriologist. The results of his investigation are presented to this Congress in charts in the Indian exhibit, and some of his conclusions will appear in a paper before another section of the Congress. Whatever may be the conclusions of the scientists as to the best methods of actively combating the disease, it is the government's duty to concern itself with the more obvious causes of its prevalence, and to take steps to remove these—as far as it is possible to remove them under existing conditions.

With the machinery at its command it can certainly accomplish something, but there are many obstacles in the way. The whole working force of the service must first be educated to an appreciation of the necessity of uniform and determined measures for preventing contagion, or else all the orders from headquarters will fail to accomplish their full intent. Even when the employees have been awakened to the dread character of the scourge, and are versed in the simple rules for checking its progress, the great mass of Indians will remain untouched. Their natural conservatism is already in evidence in all medical matters. Their religions, superstitions, and traditions,

their general suspicion of the white man, are prime elements in the situation. Their communal life, in which every article belonging to any member of a family is treated as belonging to any and every other member of it, will be difficult to change where it means teaching them the necessity for individual clothes, individual eating utensils, individual bathing accessories, and the like.

When it is considered how long it has taken intelligent white people—trained for generations to a massed and congested society—to understand and apply those simple rules which tend to preserve the good health of a community, how much slower must be the process among the Indians, children of nature whom we have dragged away from many of nature's ways!

All measures for the physical soundness of a community may be classed as defensive or aggressive. The merely defensive include all those which are designed to keep the individuals in a state of health automatically resistant to the assaults of disease—proper nutrition, cleanliness, ordinary sanitation, and the exclusion of deleterious elements, whether physical or moral.

How much has the Indian Office done in this regard?

By way of parenthesis, some explanation of the working force of the Indian Service may not be amiss to those who are unfamiliar with it. As far as it is possible to calculate the number of Indians in the United States, their population is about 300,000. For the most part they are segregated on reservations according to tribes. Each tribe is presided over by a bonded agent or superintendent, who, besides his reservation affairs, has the care of one or more schools. His staff includes clerks, teachers, farmers, mechanics, matrons, physicians, disciplinarians, cooks, etc. There are nearly 350 schools directly under the control of the Indian Office, of which, in round numbers, 120 are boarding-schools, either on or off of the reservations. Some of the non-reservation boarding-schools are very large, and have hospitals and trained nurses. There are about 25,000 children in all the schools.

In the boarding-schools the children are sheltered, fed, clothed, and taught. They go to school one-half day and the other half is occupied in manual work. The rations for their table consist of beef or bacon, rolled oats or cracked wheat, beans or rice or barley, coffee or tea or cocoa, dried fruit, flour or cornmeal, syrup, lard, potatoes, onions, vinegar, and spices. Besides, where a garden can be maintained it is expected that fresh vegetables in season will be given the children, and milk, butter, eggs, and fruit when these can be had. Many of the reservations are remote from markets, some are in arid regions where gardening has not been successful, and at other points fresh cows and good beef are not available. The table of rations was prepared with the help of the Department of Agriculture with a view to combining nutritious quality, simplicity, and economy of the food.

The Indian child on coming into school is taught to bathe with regularity, to use his own utensils at the table, to have his own towel in the washroom, his own tooth-brush, and a separate comb. His face and hands must be washed before every meal. He soon finds out that the bed-linen is washed weekly, that his own clothes are changed weekly and washed with regularity.

It has been hoped, by following this constant routine day after day and week after week, to bring about in the child a taste for cleanliness and perhaps the habit of keeping clean. Too often such a habit does not cling when the child returns to his home and family.

Besides the ordinary school equipment, most of the boarding-schools boast a steam laundry and a modern kitchen; and all the schools are built with an endeavor to observe the proper laws of ventilation, drainage, and sewerage. Sanitation is given a distinct place in the course of study prepared by the Superintendent of Indian Schools, as is also the subject of tuberculosis. These topics are discussed at the school service institutes which are annually held.

When pupils develop tuberculosis at the schools, as often happens, the practice has been, by explicit instructions from the office, to send them immediately to their homes. This was judged the wisest step to take, since it reduced the possibility of contagion for the other children, and besides gave the victim himself another chance. Many a child improves on his return home, though the physical environment there is far worse than at the school. The reasons for improvement are probably that the child is released from confinement and is with his own people, for homesickness plays a large part in the emotions of an Indian child.

The office, though maintaining the necessity of giving the Indian child an education, has no intention of making him pay for it by sacrificing his health. Realizing that the children of Indians are little wild creatures, accustomed to free life in the open air, I have gradually studied out a plan for a school-house which will not seem so much of a prison as the conventional building. In certain parts of the southwest where the climatic conditions will permit I am experimenting with a few day-schools built on the general lines of a consumptive's tent-house. A wainscoting as high as a chair-rail fences in the floor, and the space between the wainscoting and the eaves is walled with ordinary wire screen. Outside canvas curtains, mounted on rollers, can be lowered in inclement weather. A high roof throws out eaves hanging well over the walls, and the gable ends of the structure have abundant openings for ventilation. This building is supplemented with an outdoor lunch-room at those schools where a noon-day lunch is served to the pupils.

About a year ago I constituted every reservation and school physician a health officer, with power to enforce sanitary regulations within his jurisdiction. It will be a long time before we shall be able to impress the old

Indian with an understanding of the laws of cleanliness and hygiene, but in many instances we can limit the damage he is able to do his neighbor.

One word in regard to our medical service. If its results seem meager, one must stop a moment to consider its limitations. No country doctor ever had his patients more remote than some of our physicians, whose reservation may extend a hundred miles or more in each direction, with his patients widely scattered over it. Besides, he has that old obstacle and nuisance, the native medicine man, to contend with.

Liquor plays a large part in the increasing physical unfitness of the Indian, as already suggested elsewhere. There has always been a law against the introduction of intoxicating liquors into the Indian country, or its sale or other conveyance to non-citizen Indians anywhere. Like many other good laws, it was for years neglected, being treated as a mere moral declaration rather than a rule of conduct to be enforced by serious sanctions. The general revival throughout the country of a vigorous warfare upon intemperance in drink has had the effect of drawing popular attention sharply to the Indian phase of the subject, with the result that the Congress of the United States has of late been increasing each year the appropriations to enable the Indian Office to continue its efforts. A wide-spread and most effective secret service organization has been established by the office, and neighborhoods which had formerly been notorious for the ease with which an Indian could satisfy there his appetite for alcoholic liquors have been reformed, so that indulgence in such excesses has been cut down among the adjacent Indians at least 60 or 70 per cent.

The larger part of this campaign is, of course, conducted through clever detective work and prosecutions in the courts; but it stands not alone among good causes in the extent to which it depends for its success upon the cultivation of a sound, clear, courageous sentiment among the public of the vicinage. It is a noteworthy fact that the great triumphs in the suppression of the illicit liquor traffic have been won in communities where the people who rank high in business and social matters have come to appreciate their duty in the premises, and have set an example to their less aggressive neighbors in standing stanchly behind the government's agents for the enforcement of the law. And as the whole nation is only an aggregation of local communities, so we must depend upon the spread of such a sentiment all over the United States to keep the lawmakers at Washington encouraged in voting increased appropriations and making such amendments to the statutes as may be necessary from time to time to meet difficulties in the way.

In the great aggressive campaign which is going on all over the world against tuberculosis, what part is the Indian Office taking?

The first step of any importance was the change of the boarding-school on the Colville Reservation to a sanatorium school, the present purpose of which

is to provide a place for incipient cases of tuberculosis in all forms in pupils who are yet able to attend school, but of whom close supervision is needed. It is in charge of a physician as principal. As a sanatorium school it has not been long in operation. Its results, therefore, cannot yet be seen.

In the Indian exhibit you will perhaps observe the sketch of a sanatorium attached to the industrial school at Chemawa, Oregon. A few years ago the superintendent, who is a member of his State Association on Tuberculosis, conceived the idea of conducting his own little open-air relief camp in connection with his school. When any of his pupils seemed to be simply "run down," he sent them to his little camp in the orchard to recuperate. In some cases tuberculosis was pretty evident, in others, only suspected. The success he had with this small endeavor encouraged him to ask for a more pretentious camp. The tent-houses are erected according to the best type, being raised above the ground, with boarded floors and walled to the height of about four feet. The space above the walls, to the eaves of the house, is open to allow free circulation of air. Eight of these small houses around an attractive ellipse will be for the girls. One of the eight cottages will be the recreation room, another a bath-house, and the remaining six will be used as quarters for two girls each. A duplicate scheme will provide for the boys. The buildings are placed in the rear and close to the hospital of the school from whose dining-room the sanatorium occupants will be served. Only incipient cases will be treated in this sanatorium.

This plan, which is subject to local adaptations, will be the model for all the camps to be established in the Indian field. At present preparations are under way for camps at Ft. Lapwai, Idaho, Albuquerque, N. M., Pine Ridge, S. D., Lower Brule, S. D., Mescalero, N. M., Fort Belknap, Mont., and White River, Ariz.

It is not the intention of the office to rush into building camps on every reservation, regardless of the possibility of their success. It is purposed to begin experimentally in a small way in a few places where they seem either most necessary or most feasible, trusting to a considerable extent to those in charge of them to make them not only useful but popular.

It has been anticipated by many of the agents and physicians that it will be very difficult to maintain successful camps for Indians, who object to being isolated; and it is insisted that the patients will so soon weary of the life that they will depart in the night, no one knows whither, and never return; for we must reckon with certain racial peculiarities. Such objections, let us hope, will prove but the lions in the way of all new and undemonstrated ideas. We can at least make the attempt. We *must* make it.

These camps, properly conducted, will be of special value to tubercular pupils returned from school. Here they can be segregated and supervised in a camp on the reservation without being cut off entirely from their friends.

There is another and most important, though little known, office held by women, which might easily become the greatest power for good in the service. Sometimes near the agencies, but oftener in out-of-the-way places, the government has established field matrons. Each is given a cottage by the government and certain accessories needed for her work. She is supposed to visit the sick; look after the aged, whom too often the young and well Indians neglect; teach mothers how to care for their children properly, and show housewives how to keep their homes clean and their families clothed and fed. Here is the point of our closest contact with the old-fashioned Indians, whose mental and physical horizon has always been, and doubtless will be till death, limited by the reservation. It is now proposed to put into the hands of the field matrons—many of whom, though cleanly, are not familiar with the subject of tuberculosis in more than a vague way—a small pamphlet containing only those simple facts and rules which will inform them how to care for the cases that may come under their notice, and for preventing contagion. It will not be possible to send into the wilderness such rules as govern the care of cases in Washington or New York. Milk and eggs may be unknown quantities, and other highly nutritious and easily digested foods out of the question. Disinfectants, too, may be hard to get. Water, even, may be had by the bucketful only. But fresh air for the patient, rest, a certain degree of cleanliness, and the absolute destruction of the sputum of all tubercular cases—these essentials can be not only preached but practised everywhere. Indeed, if we can do no more with the old-fashioned Indian than instil into him a wholesome fear of the sputum, we shall have accomplished a good deal, and reduced contagion at least by the fraction of a degree.

A large number of Indians in the Dakotas, all included in the great Sioux family, speak substantially the same tongue, which they can also read. It has been suggested to the office that a few axioms regarding tuberculosis, or perhaps a popular treatise on it, might be translated into their language, as an effective means of reaching the reservation Sioux. This suggestion the office purposes to follow in the near future.

The Indian school at Carlisle, Pennsylvania, the largest in the service, has undertaken a course of popular talks on the subject of tuberculosis, to be given by the physician. Extracts from these talks will be printed by the school press for distribution in the service.

Some immediate and very practical results will follow the investigation of Dr. Hrdlicka in the field. At one or two schools the band instruments were examined by the bacteriologist of the expedition, Dr. Paul Johnson, and found to contain bacilli. As there are many bands in the schools, and all of them popular with the students, the Indian Office, under advice from the Hygienic Laboratory, has ordered that all wind instruments be disinfected,

and that no pupil known to be tubercular shall be allowed to use them at any time.

The matter of recreation in the schools we are inquiring into, with a view of relieving the Indian child of too much confinement and routine. For it is undoubtedly a physical strain on an Indian child to be taken from his free life on the reservation, where there is no count of time save by the rising and the setting of the sun, and placed in a populous school, where everything goes by the clock, the bell, or the bugle.

The writer of this paper is painfully aware of its shortcomings in many respects. The only purpose for which it was prepared was to prove the live interest taken by the custodians of the American Indians in such work as that represented by the distinguished gathering to whom it is most modestly presented. It makes no pretence of adding anything to the store of knowledge possessed by the scientific world; it is intended to draw out suggestions rather than to record accomplishments; and the most that can be hoped for it, in behalf of the Indian Office, is that its readers may discern—

> between the written lines
> The finer grace of unfulfilled designs.

La Lucha Contra la Plaga Entre los Indios.—(LEUPP.)

Como otros pueblos primitivos, los Indios Americanos son muy susceptibles à la tuberculosis. Diferentemente de los Caucasianos, ellos no tienen predecesores que hayan estado resistiendo la enfermedad hasta el punto de una comparativa inmunidad; y el tuberculo fueron desconocidos de los Indios, se cree, hasta que los blancos llegaron á este hemisferio.

En su vida aborígena, los Indios no tienen casa permanente, y sus ocupaciones eran tales á mentenerlo afuerza y endureciendo su cuerpo. Cuando su tepee (su tienda ce pieles) estaba rodeado de inmundicias, se mudado á otro lugar fresco. Llevaba pocos vestidos, en algunos lugares ninguno. La exposición abierta al sol, una pesada dieta de carne y una esparcida y samoviente población eran una segura defensa contra los gérmenes.

Los tiempos han cambiado. El Indio no puede vagar por donde quiera à voluntad. Sobrecarga su cuerpo con modernos vestidos. Se le ha enseñado á vivir en una choza en la que clava las pocas ventanas, tapa las endijas y prende una estufa que calienta al rojo. En uno ó dos cuartos de estos edificias come, duerme, levanta su familia, entretiene su gran círculo de amigos, expectora, se enferma y muere. Todas las condiciones son perfectas para la propagación de la tuberculosis. A su debido tiempo esta comunidad se convierte en un nido de infección para la gran comunidad de blancos que rápida crece á su alrededor. Educarlo en el arte de

vivir en las condiciones de civilización es la primera necesidad con que se tropieza en este caso. La limpiesa del cuerpo, de la casa y sus habitos, que tan largo tiempo se ampleado en ensenar la hombre blanco ignorante, tomarà todavía más largo tiempo para enseñar el Indio; y la naturaleza de su mente es tal que tendremos no solo que forza las reglas sobre él en su propio bien, sino tambien un paciente trabajo para hacerle comprender las razones y su necesidad.

La Oficina de Indios, completamente prevenida de la prevalencia de la enfermedad, está no solo á la defensiva sino que hace higiene y sanidad, con especial referencia á la tuberculosis, una hace de sus Regulaciones, su Curso de estudio para sus escuelas, su colècción de estadística, sus circulares para el servicio del campo y sus Institutos de Maestros. Al prepararse para tomar parte en el Congreso Internacional de Tuberculosis, ha enviado, en cooperación con el Instituto Smithsonian, al Dr. Ales Hardilicka, al campo, quien con bacteriologista ha hecho una investigación por lo menos en cinco tribus. Sus conclusionnes secán presentadas á otra sección del Congreso.

La Oficina trabaja en un definitivo programa para posteriores trabajos. Una de las escuelas en el estado de Washington ha sido convertida en Sanatorio para aquellos niños tuberculosos hábiles para ir á la escuela sean educados y se ten ga cuidado de ellos. Una gran escuela en Oregon ha mantenido por algunas años con éxito un campamento en donde los pupilos infectados pueden vivir vida á completo aire libre; este campamento, agrandado hoy sobre planes modernos será el modelo para otros campamentos que se estableceràn pronto en Idaho, Montana y donde quiera en el país de los Indios. La escuela Carlisle, en Pennsylvania tiene un curso preparado que se seguirá en las conferencias ante los est diantes é imprimirá circulares para distribuirse durants el Servicio. Cada médico de Reserva ha sido investido con la autoridad de oficial de Salud é Inspector de Sanidad, y las matronas del campo seràn instruidas especialmente para trabajo de casa en casa entre los Indios de quienes ellas son ministros. Tambien se proyecta la traducción de algunas reglas simples preventivas en el lengua Dakota, el Ojibway y otras lenguas nativas.

THE UNITED STATES MARINE-HOSPITAL SANATORIUM FOR TUBERCULOSIS AT FORT STANTON, NEW MEXICO.

By P. M. Carrington,

Surgeon United States Public Health and Marine Hospital Service.

Introductory and Historical.

The Fort Stanton Sanatorium, being one of the three sanatoriums maintained by the national government for the treatment of tuberculosis, it has been thought advisable that I present to this Congress a brief account of the work of the sanatorium from its inception in 1899 to the present year.

In former articles* I have presented to the profession accounts of the work at Fort Stanton. This article includes consolidated statistics from the opening of the sanatorium in November, 1899, to June 30, 1908—a period of nearly nine years. During this period we have treated 1397 individuals and, including readmissions, 1499 cases.

Fort Stanton was established as an army post for the control of the Mescalero-Apache Indians in 1855. The post was burned and abandoned in 1861 by the United States forces upon the approach of the Texas troops under General Sibley. In the spring of 1863, after the defeat and withdrawal of the Confederate troops, it was reoccupied, and from 1868 to 1871 rebuilt. Necessity for its existence as an army post having ceased, it was abandoned in August, 1896, and a long-cherished project of Surgeon-General Wyman was consummated when, on April 1, 1899, President McKinley signed an executive order transferring the Fort Stanton Military Reservation to the Treasury Department for use by the then Marine Hospital Service, as a sanatorium for Consumptives.

The reservation with its thirty odd buildings was received by Passed Assistant Surgeon (now Surgeon) J. O. Cobb, representing the Marine Hospital Service, shortly after the date of the executive order, and the work of pre-

* "Sanatorium Treatment of Tuberculosis," published in The Journal of the American Medical Association, December 6, 1902. "Further Observations on the Treatment of Tuberculosis," published in Journal of the Association of Military Surgeons, 1904.

paring the buildings for occupancy was immediately begun, the sanatorium being actually opened by the reception of the first patient in November, 1899.

Descriptive.

(*a*) *Geographical.*—The Fort Stanton Sanatorium is located in Lincoln County, in south central New Mexico, in 33.5° north latitude and 105.5° longitude west of Greenwich. Its area is nearly 45 square miles, in the center of which, on the south bank of the Rio Bonito, are situated the sanatorium buildings. This large area was necessary and has been fenced for a horse and cattle range, and also to prevent the too near-by settlement of undesirable neighbors.

(*b*) *Topographical.*—The reservation is situated in the foothills of the White Mountains, with the Rio Bonito traversing it from west to east for a distance of eight miles. Its surface includes the beautiful valley of the Rio Bonito, hills of varying altitude, and broad mesas or table-lands. These hills, brown and bare during the greater portion of the year, are, during the late spring and early summer months, clothed in verdure and a kaleidoscopic array of wild flowers. Along the Bonito the cotton-wood trees, black walnuts, and a species of the live oak grow in profusion, while many of the hills are covered with piñon, juniper, and cedar, which supply us with fuel.

The sanatorium buildings are surrounded on the north and south by hills rising from 300 to 600 feet above them, and affording protection from severe winds. To the east are the foothills of the Capitan Mountains, which at a distance of 10 miles rise to an altitude of 10,000 feet. To the westward the hills rise tier upon tier and culminate, 20 miles away, in White Mountain Peak, 12,000 feet above sea-level, snow-capped during the greater portion of the year, and the source of the Rio Bonito.

The Rio Bonito well deserves its name, for it is a beautiful stream; traversing a lovely and fertile valley, its water irrigates productive fields and orchards. Here the apple, peach, and pear grow in all their perfection and beauty, and many small fruits, farm and garden products are produced in great abundance.

(*c*) *Climatological.*—The climate of Fort Stanton is in general terms that of the arid southwest, but modified by differences in altitude, latitude, and topography. Its climate is characterized by small rainfall, low relative humidity, large percentage of sunshine, and comparative freedom from high winds, with cool or cold nights according to the season. The topography is such that natural drainage is excellent. The soil is porous and dry and evaporation very rapid. While there is a wide daily range of temperature, the low temperatures occur during the night, and even on the coldest days outdoor life is not only possible, but pleasant, on account of the warm sunshine.

We claim for the climate of Fort Stanton that it permits agreeable outdoor life almost every day in the year, and for a greater number of hours in the day than is possible in the east. Patients more readily obey regulations requiring them to be out-of-doors when to do so is convenient and pleasant.

The altitude of about 6200 feet stimulates respiration, bringing into functional activity portions of the lungs which at lower altitudes are inactive. The high hills surrounding the sanatorium buildings give protection from high winds, and dust-storms, so prevalent on the plains and table-lands of the southwest, are of comparatively infrequent occurrence. We have an abundant supply of pure snow water from the Rio Bonito during a greater portion of the year, and when the stream fails, a deep well furnishes an ample supply of soft and remarkably pure water.

Character of Cases Admitted.

We admit to the Fort Stanton Sanatorium cases of tuberculosis of the lungs in all stages, as well as tuberculosis of other organs. As will be noted from the statistical tables, there is a great preponderance of moderately and far-advanced cases. Eliminating readmissions, we have treated during the period covered by this report 1339 cases of tuberculosis, divided as follows:

Incipient	80
Moderately advanced	492
Far advanced	765
Tuberculosis of other organs	2
	1339

This summary does not include consumptive officers and employees, who are treated of under a separate heading. In these 1339 cases nearly half were above thirty-five years of age, and a very large percentage suffered from grave complications of stomach, liver, kidneys, and other organs.

Housing.

When Fort Stanton was transferred to the Treasury Department for use as a sanatorium, the old army buildings, consisting of officers' quarters, barracks, offices, and various service and outbuildings, to the number of more than thirty, were found to be in a condition of deplorable dilapidation, but the walls at least were all good, and the existence of these buildings was a factor of weight in determining the selection of this particular location. Nearly all the old buildings have been altered and repaired to fit them for their new uses. Two old barracks buildings were fitted up as dormitories, and when in 1905 the old army hospital was destroyed by fire, one of these dormitories was hastily prepared for use as a temporary hospital; lacking appropriation for a new hospital, it continues to be used for this

purpose. These dormitories accommodate about sixty patients each, and good ventilation is had by means of opposite windows and doors, and also by means of roof ventilators. They are supplied with ample toilet and bath facilities, but we find in experience that most of our patients prefer to live in tents or tent-houses; chiefly, we believe, because of the greater privacy obtaining in the latter.

Early in my detail at Fort Stanton I began the use of tents. We at first pitched an ordinary 12 by 14 tent, placed in it two beds, and laid a few boards on the ground between the two beds. Even this crude tent became popular, and we gradually improved upon it.

For these tents, as well as tent-houses and dormitories, a certain standard of opening for ventilation has been adopted, and the officer of the day, in making his inspections, sees to it that this standard is maintained. Our tent-house we regard as a very nearly perfect consumptive dwelling. It is now built 14 feet square, with a front porch and a clothes-closet in the rear. The openings are very ample, being formed by canvas panels, the doors made of two panels of the pattern known as the "Dutch door," while the window panels are hung on weights, and readily slide up and down; they may be opened from the outside as well as from the inside. Each tent-house is supplied with a small sheet-iron stove, and a patient may close all the openings, undress, and retire in a warm room; then the nurse may come around and open up the tent-house freely for ventilation. Each tent-house, and tent as well, is supplied with an electric light, and each group of a dozen tents, or tent-houses, has in its center a toilet and bath-house, which serve the patients occupying that group.

Prevention of Infection.

Our efforts to prevent the infection of the sanatorium have met with apparently perfect results. The principal precaution, of course, relates to the disposal of sputum. We use at Fort Stanton a metal pocket-cup and a bedside cup consisting of a light metal frame and a paper filler. The pocket cups are disinfected daily by steam under pressure of two atmospheres, and the paper fillers are burned in crematories especially constructed for this purpose.

Urine of all patients in the hospital, as well as of other cases in which there are indications therefor, is received in vessels containing a solution of carbolic acid or formalin, and, of course, stools of patients with tubercular enteritis are disinfected before being disposed of. In view of the fact that recent observers have demonstrated the presence of the bacillus in the dejecta of a very large percentage of all consumptives, it may seem superfluous to disinfect these stools. All our sewage is disposed of by the irrigation method in a fenced area considerably larger than absolutely necessary, but we feel that it is wise to limit, so far as possible, the number of bacteria whose

destruction we must depend upon by this method. Stringent regulations regarding spitting elsewhere than in the cups provided are enforced. There have been occasional infractions of the spitting ordinance, but we find that patients become so accustomed to the use of spit-cups that the action is mechanical and automatic, and that spitting elsewhere than in the cups is a rare exception. The detection of any one spitting elsewhere than in his cup is always followed by summary dismissal, and in the rare instances where it has been necessary, has had a most salutary effect.

Daily Routine.

With a daily average of from 200 to 225 patients we have found it convenient to divide the work into various departments rather than to assign a particular number of patients to each medical officer. The commanding officer devotes himself chiefly to administrative details. One officer has charge of physical examinations and another has the laboratory work. The hospital is in charge of another officer, and one has the ambulant sick call, while another has the surgery and still another the nose and throat clinic. Each junior medical officer serves in turn as "officer of the day" for a period of twenty-four hours, and while so serving it is his duty to make a morning inspection of all quarters occupied by consumptives, baths, toilets, etc. He answers emergency calls, receives arriving patients, and between the hours of 9 P. M. and midnight makes a second general inspection, chiefly with a view to ascertaining whether or not good order and discipline prevail. Upon going off duty at 9 A. M. he renders a written report, on a blank form designed for the purpose, of the occurrences of the twenty-four hours. Any adverse report is referred by the commanding officer to the person whose duty it is to correct it. Out of seven medical officers, two, including myself, are recovered consumptives, and three are under treatment and fast recovering.

Patients upon arrival are first assigned to the receiving ward, and remain at rest in bed for at least four days, in the mean time being taught by oral instructions and frequent perusals of a leaflet what manner of life they are expected to live in the sanatorium. On the fifth day they are, if able, brought to the examining room, and a record of pulse, temperature, etc., furnished the examining officer. These cases are then transferred to one of the dormitories, tents, or tent-houses, as their condition may justify. Cases unable to leave the receiving ward are examined in bed, and transferred to the hospital ward proper, where they remain in bed for as long as may be necessary.

Once in each week the officer in charge of the ambulant sick call, composed of more than two-thirds of the patients, gives a lecture at his regular morning

call, upon the subject of sputum disposal, ordinary hygiene, and other matters affecting the daily life of the patients under his charge. He follows up these lectures by daily visits to the dwellings of his patients, exercising a minute supervision over their manner of life.

Rest and Exercise.

Not the least of our remedial agents is rest. Where there exists a doubt, the consumptive should rest rather than exercise. Even the best cases should take their exercise with proper caution, and this is especially true of newly arrived cases, who have not as yet become readjusted to the change in altitude from sea-level to over 6000 feet. Patients showing febrile reaction and those with a pulse-rate of 100 or more we keep at absolute rest. Those with very limited chest expansion, but in other respects capable of taking a certain amount of exercise, are put through simple breathing exercises daily with a view to increasing their chest expansion. The officer in charge of the ambulant sick call exercises great care and personal supervision over his men, attempting to control their daily habits, particularly with reference to the amount of exercise permitted, individualizing as far as possible and prescribing rest and exercise in appropriate proportions according to the requirements of each individual case.

We find many consumptives either desiring or actually coming to the neighboring towns and ranches with a view to earning their living in a rather rough way. This we discourage so far as lies in our power, believing that the influence of appropriate climate in the treatment of tuberculosis suffers in the estimation in which it is held by our eastern brethren because of failures which result from the class of cases referred to, who come to the southwest without means, and actually kill themselves as a result of their efforts to be self-sustaining.

Amusements.

To keep our patients entertained, amused, and satisfied has been a problem which we have not always solved satisfactorily. However much we may disagree as to the admissibility of various forms of amusement, we certainly are all agreed as to the necessity of entertaining and interesting our patients. I find it frequently necessary to permit amusements which are not entirely unobjectionable rather than, by their interdiction, to permit patients to brood and mope. We therefore permit croquet, cards, walking and shooting, golf, and, in a small percentage of extra good cases, horseback exercise. The stooping required in playing croquet, the excitement inevitable in card-playing, and other objectionable features of most forms of amusement I consider less evil than absolute inaction. Of course, certain cases are forbidden any form of exercise or amusement and many require absolute rest.

We make an effort to individualize, and the officer in charge of the ambulant sick call spends a large portion of his time in visiting his patients in their quarters and advising them with regard to their exercise and amusements. When in any doubt as to the admissibility of amusements, they are denied.

Statistics and Comments Thereon.

Gross total of admissions (exclusive of officers and employees)	1441
From this amount should be deducted the readmissions, amounting to	102
Which leaves the number of individual cases treated	1339

The class of cases composing this 1339 is as follows:

Tuberculosis of lungs	1337
Tuberculosis of testicle	1
Tubercular abscess, psoas	1
Total	1339

The results obtained in the above-mentioned 1337 cases of tuberculosis of the lungs were as follows:

INCIPIENTS.

Cured	0	
Apparently cured	25	
Arrested	19	
Improved	19	
Unimproved	14	
Died	1	
Under treatment for less than thirty days (still on hand)	2	80

MODERATELY ADVANCED.

Cured	2	
Apparently cured	63	
Arrested	81	
Improved	233	
Unimproved	34	
Died	73	
Under treatment for less than thirty days (still on hand)	6	492

FAR ADVANCED.

Cured	2	
Apparently cured	14	
Arrested	76	
Improved	209	
Unimproved	79	
Died	374	
Under treatment for less than thirty days (still on hand)	11	765
Total		1337

SUMMARY.

Cured	4	
Apparently cured	102	
Arrested	176	
Improved	461	
Unimproved	127	
Died	448	
Under treatment for less than thirty days (still on hand)	19	
Total		1337

During the period covered by this report we have also treated, in addition to the 1337 cases of tuberculosis of the lungs above recorded, 58 consumptive officers and employees. In these cases the results have been as follows:

INCIPIENTS.

Cured	0	
Apparently cured	7	
Arrested	3	
Improved	5	
Unimproved	1	
Died	0	
Under treatment for less than thirty days (still on hand)	1	17

MODERATELY ADVANCED.

Cured	1	
Apparently cured	4	
Arrested	4	
Improved	5	
Unimproved	1	
Died	0	
Under treatment for less than thirty days (still on hand)	0	15

FAR ADVANCED.

Cured	0	
Apparently cured	3	
Arrested	4	
Improved	10	
Unimproved	7	
Died	2	
Under treatment for less than thirty days (still on hand)	0	26
Total		58

SUMMARY.

Cured	1	
Apparently cured	14	
Arrested	11	
Improved	20	
Unimproved	9	
Died	2	
Under treatment for less than thirty days (still on hand)	1	
Total		58

In the foregoing statistics I have treated all the cases received at the sanatorium from its opening in November, 1899, to and including June 30, 1908, as though the sanatorium had closed on the last day of June. Of course, as an exhibition of our results the figures as given above are somewhat misleading; therefore, in order to entirely clarify the matter, the following tables are added:

As heretofore shown, the individual cases treated were as follows:

Tuberculosis of the lungs		1337
Tuberculosis of testicle		1
Tubercular abscess, psoas		1
		1339
Cases treated for thirty days or less:		
Discharged	115	
Still under treatment	19	134
Cases discharged, treatment being terminated:		
Tuberculosis of lungs		1033
Tuberculosis of testicle		1
Tubercular abscess, psoas		1
Cases still under treatment		170
Total		1339

The following results were obtained in the 1033 discharged cases in which treatment was terminated, viz.:

INCIPIENTS.

Cured	0	
Apparently cured	25	
Arrested	15	
Improved	15	
Unimproved	10	
Died	1	66

MODERATELY ADVANCED.

Cured	2	
Apparently cured	63	
Arrested	51	
Improved	198	
Unimproved	24	
Died	73	411

FAR ADVANCED.

Cured	2	
Apparently cured	14	
Arrested	40	
Improved	151	
Unimproved	53	
Died	296	556
Total		1033

SUMMARY.

Cured	4	
Apparently cured	102	
Arrested	106	
Improved	364	
Unimproved	87	
Died	370	
Total		1033

Miscellaneous statistics of the 1337 cases treated for tuberculosis of the lungs:

AGES OF PATIENTS TREATED.

Under 25 years	243
Between 25 and 34 years	479
Between 35 and 44 years	384
Between 45 and 54 years	176
Over 54 years	55
Total	1337

HEREDITY IN PATIENTS TREATED.

History of tuberculosis in parents	199
No history of tuberculosis in parents	1109
History of tuberculosis in parents doubtful	23
History of tuberculosis in parents no record	6
Total	1337

TUBERCLE BACILLI.

Were not found in sputum of	65
Were found in sputum of	1250
No record	22
Total	1337

RECORD OF PULMONARY HEMORRHAGES OF PATIENTS TREATED.

Before arrival only	241
After arrival only	85
Both before and after arrival	190
Neither before nor after	613
Streaked sputum	208
Total	1337

LENGTH OF TIME UNDER TREATMENT AT SANATORIUM.

Over 2 years	159
Between 1 and 2 years	247
Between 6 and 12 months	311
Between 3 and 6 months	274
Between 3 and 1 month	212
One month or less	134
Total	1337

It will be noted, and attention is particularly invited to the fact, that out of the 1339 individual cases treated, only 80, or about 6 per cent., were incipient, and that more than 50 per cent. were far-advanced cases. If we

eliminate from this total the cases still under treatment, and cases in which treatment was terminated within thirty days, there remains a balance of 1033 cases in which the results are shown in one of the foregoing tables, from which it will appear that 576, or considerably more than 50 per cent., were cured, apparently cured, arrested, or improved. The deaths amounted to about 35 per cent. and the unimproved to less than 10 per cent.

Turning next to the tables covering 58 cases of consumption among officers and employees, it will be noted that the percentage of cures, apparent cures, and arrests is very much larger. This I attribute largely to the fact that the patients included in this list are of a generally higher grade of intelligence, education, and refinement than the average of the class included in the larger list, and it argues that the intelligent and educated consumptive, being more readily convinced of the necessity and importance of the regulations made for his daily guidance, more willingly gives heed to such instructions, and therefore has a better chance of recovery than his more ignorant and less tractable fellow-sufferer.

Industrial Features.

In establishing the sanatorium at Fort Stanton, it was the desire and intention of the Surgeon-General that the sanatorium should eventually become in some measure self-supporting. With this object in view we secured a reservation of nearly 45 square miles, fenced it, and stocked it with beef and dairy cattle, as well as with horses for breeding purposes. We have always produced our entire milk-supply, and are just now producing all the beef we can consume. We maintain a truck garden of about 10 acres, producing all of our fresh and a large part of our winter vegetables, and have planted an orchard which will shortly supply us with all of our fresh fruit. These various industries provide us the means of furnishing employment to many of our recovered cases who desire to continue their residence in the region where they have recovered. Similarly we are enabled to give employment to and actually give preference to consumptives seeking employment, provided their condition will permit them to work at these various employments. In addition to the features mentioned above, we maintain a farm of about 200, acres producing our own hay and a portion of our grain.

In our plumbing, painting, and carpentry departments we frequently find it possible to employ consumptive workmen.

A considerable number, although I am unable to give exact figures, of our apparently cured, arrested, and improved patients have taken up employment in near-by localities. Most of those who were apparently cured or arrested upon dismissal have progressed to recovery. Some of them continue to reside in this region because of having become attached to the locality and its climate. To mention a few instances: a former chaplain,

discharged from treatment about eighteen months ago, apparently cured, is pastor of the Presbyterian Church at Tucumcari and writes me that his health continues robust. Another was at last accounts conducting a meat market and restaurant in the growing town of Carrizozo, New Mexico; another conducts a small general store which gives him a clear net profit of $75 to $100 per month; another, a newspaper man, who during the two years of his employment here had the duty of daily inspecting and keeping in repair our principal water-supply ditch, was discharged apparently cured and took a position on a Beaumont, Texas, paper, later going to San Antonio, and is at present in apparent good health, acting as city editor for a daily newspaper in St. Joseph, Mo.; and such cases might be multiplied indefinitely.

Mortality and Explanation Thereof.

We receive cases, as heretofore stated, in every possible stage of the disease, and their ages have varied from eighteen to eighty-four years, although a majority are under forty years of age. I will not attempt to give a detailed list of tubercular and non-tubercular complications. The following are some of the most frequent complications noted as affecting prognosis:

Fistula in ano	26
Intestinal involvement	40
Laryngitis	148
Chronic nephritis	108
Asthma	14
Aneurism of aorta	5
Diabetes mellitus	5
Involvement of lymphatic glands	26
Hemorrhoids	97
Otitis media	54
Arteriosclerosis	15
Valvular disease of the heart	115
Degeneration of columns of cord	4
Hemiplegia and other paralyses	5
Pneumothorax and hydrothorax	28

A very large percentage of our cases have been addicted, prior to their reception by us, to the excessive use of alcoholic liquors, and nearly all of the complications referred to above have been in existence at the first examination. The chronic alcoholic is not only apt to have serious degeneration of the liver, but such patients almost invariably have stomachs the functions of which are very seriously impaired and thus militate against recovery. Out of a total of 448 deaths, 78 cases have succumbed to the disease within thirty days after arrival. Given an advanced stage of tuberculosis of the lungs in a chronic alcoholic subject, the possibility of recovery or even improvement is reduced to a minimum. From 60 to 75 per cent. of our patients suffer from advanced pyorrhœa alveolaris.

Treatment and Concluding Remarks.

The only treatment upon which we rely with any feeling of security is living in the open air as much of the time as possible; second, a dietary as complete and satisfying as is possible; and third, but not least, rest and graduated exercise, with that general supervision of the patient's daily life and conduct which comprises hygienic treatment.

We maintain our own dairy herd, producing from 80 to 150 gallons of milk per diem according to the season, and our patients are only restricted in the use of milk by the quantity produced. During the seasons of greater plenty we produce often as much as 500 to 600 pounds of butter monthly, and we have from our own chicken yard during a considerable portion of the year sufficient newly laid eggs to supply those patients who are eating them raw. We have found no medical treatment which offers any noticeable betterment of our results. We have recently attempted the use of mercury succinimid by deep muscular injection. We have used this treatment on twenty-five or thirty patients during a period of two months, but have been unable to secure any results even remotely approaching those published by Surgeon Wright, of the navy. For hemorrhage we use amyl nitrite, the recumbent posture, and ice-bags, followed by the use of sodium nitrite. Personally, I have very little faith in medicinal treatment for hemorrhage. We have recently been using tuberculin for diagnostic purposes, using the ophthalmic test. This has been valuable in diagnosis of obscure cases. We have recently begun the use of tuberculin by mouth, after the method of Arthur Latham, of London. Our cases are as yet few and have been continued for too short a time to warrant any positive opinion as to its value, but it has seemed to be of value in the carefully selected cases in which we have used it.

I am more and more convinced of the necessity of individualizing in the treatment of tuberculosis; that is, that each patient shall be carefully studied by the officer in whose care he immediately is, and then his daily life, particularly as to food, rest, exercise, and the like, carefully outlined to meet his individual needs, and this we attempt to do as nearly as it may be possible.

There is another matter affecting very seriously our statistics which I will ask you to remember in considering this paper, namely, that although our patients are sent from the various hospitals of the service, absolutely without expense to themselves, we have no control over the length of time they may be willing to remain under treatment. It consequently happens in an always large percentage of cases that many such, instead of being recorded as "improved" or "arrested," would with just a little more patience have been recorded "apparently cured."

ADDENDA.

METEOROLOGICAL DATA FOR FORT STANTON, NEW MEXICO.

Average number of Days.

Clear	16	14	13	15	16	13	10	11	13	20	16	16	173
Partly cloudy	11	10	13	12	12	13	15	15	11	7	9	12	140
Cloudy	4	4	5	3	3	4	6	5	6	4	5	3	52
With precipitation	4	5	5	3	4	7	11	11	8	4	4	4	70

Average Monthly Relative Humidity. (For 28 Years.)

0.64	0.72	0.86	0.64	0.89	1.76	3.16	3.44	2.30	1.45	0.67	0.88	17.41

Average Monthly Relative Humidity. (For 7 Years.)

60	55	47	37	34	41	55	57	59	56	59	61	52%

Mean Maximum Temperature. (For 7 Years.)

47	52	56	65	72	81	83	80	74	66	55	49	65

Mean Minimum Temperature. (For 7 Years.)

21	27	29	36	44	50	56	54	48	37	28	24	38

Mean Temperature. (For 28 Years.)

35	38	44	51	60	67	69	67	61	52	42	36	52

Highest Monthly Temperature.

69	76	73	78	85	94	95	92	86	80	72	68 (July)	95

Lowest Monthly Temperature.

—6	—3	6	14	29	34	46	44	31	22	7	—18	—18 Dec. 22, 1887

Average Hourly Wind Velocity.

8.0	9.2	8.4	8.2	7.5	6.0	4.5	4.7	4.4	5.2	6.1	6.8	6.6

Highest Velocity.

51	54	60	60	63	42	44	36	30	42	44	50	63, May.

Monthly Average Snowfall.

1.6	2.1	8.2	T.	0	0	0	0	0	T	4.2	6.2	22.3

Average date of last killing frost in spring.....May 6th
Average date of first killing frost in autumn.....October 5th

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U. S. M. H. S. Sanatorio para Tuberculosos en Fuerte Stanton, N. Mex. Resultado de Neuve Años de Trabajo.—(CARRINGTON.)

Este artículo incluye estadística desde Noviembre de 1899 à Junio 30 de 1908. Aproximadamente 1,400 individuos fueron tratados. Fuerte Stanton fué originariamente un puesto del Ejército para contener los Indios Apaches. Fué dedicado á Sanatorio por orden Ejecutiva del Presidente McKinley, April 1 de 1899.

Descripción.—(*a*) Geografía: Está colocado en el Condado Lincoln en

el sur central de Nueva México. El area de la Reserva, bajo cerca, es aproximadamente de 45 millas cuadradas; larga area necesaria para la colocación de ganado y caballos.

(*b*) Topografía: La Reserva, situada al pié de las colinas de Montaña Blanca, atravesada de este à oeste por el rio Bonité una distancia de ocho millas, comprende valles, colinas y mesetas.

(*c*) El clima está caracterizado por poca caída de lluvia, poca humedad, excelente desecación, suelo seco, alto percentaje de sol claro y comparativamente libre de altos vientos, con frescas ó frias noches.

Caracteres de los casos admitidos.—Casos recibidos en todos los estados. Gran preponderancia de casos avanzados. Gran percentaje de complicaciones graves.

Acomodo.—Se usan grandes dormitorios, tiendas y casatiendas. Descripción de las últimas nombrades.

Para Prevenir la infection.—Se dispone de los esputos, principalmente por incineración.

Rutina diaria.—Descripción de la rutina diaria para mantener el Sanatorio.

Dieta.—Amplia y variada, con preponderancia de carne fresca, leche y huevos. No se fuerza la alimentación.

Ejercicio y descanso.—Diversiones y entretenimiento necesario.

Estadística y comentario sobre ella.—Estadística que cubre como 1,400 individuos y 1,500 casos más ó menos, con comentarios.

Mortalidad y su explicación.—Gran mortalidad inevitable debido al gran percentage de casos muy avanzados; serias complicaciones frecuentes; gran percentage con malos hábitos adquiridos y pobreza de inteligencia y educación.

Aspecto industrial.—Ventaja del Sanatorio en su capacidad para suministrar empleo á los casos convalescientes.

Tratamiento y Observaciones Finales.—El clima, la dieta y el tratamiento higiénico es en lo que casi solamente se confía.

U. S. M. H. S. Sanatorium pour tuberculeux à Fort Stanton, New Mexico.—(CARRINGTON.)

Préliminaire et historique.—Cet article renferme des statistiques depuis novembre 1899 jusqu'au 30 juin 1908; environ 1,400 individus de traités. Fort Stanton originellement un Poste de l'Armée pour surveiller les Indiens Apache, réservé comme sanatorium par Ordre Exécutif du Président McKinley, le premier avril, 1899.

Description.—(*a*) Géographie: Situé dans Lincoln County à la partie sud centrale de l'État de New Mexico. Aire de Réservation environ 45

milles carrées; enclos; cette grande étendue nécessaire pour bétail et chevaux.

(*b*) *Topographie:* Réservation située au pied des Montagnes Blanches, traversée par Rio Bonito de l'ouest à l'est une distance de huit milles; contenant des vallées, des collines et des plateaux.

(*c*) *Climatologie:* Climat caractérisé par peu de pluie humidité basse, écoulement excellent, sol sec, grande proportion de lumière de soleil, abri contre les vents violents, nuits fraîches ou froides.

Caractère des cas admis.—Cas reçus dans toutes les périodes. Grande prépondérance des cas médiocrement avancés et des cas graves. Grande proportion de complications graves.

Logis.—Grands dortoirs, tentes et maisons-tentes. Description de celles-ci.

Prévention d'infection.—Disposition des crachats, principalement par incinération.

Routine journalière.—Description de la routine journalière et de la direction du sanatorium.

Nourriture.—Abondant et varié avec prépondérance de bœuf frais, lait et œufs. Pas de gavage.

Repos et exercise.—Importance de repos et soin nécessaire à l'égard d'exercise.

Amusements.—Divertissement et amusement nécessaires.

Statistiques et commentaires.—Statistiques d'environ 1,400 individus et environ 1,500 cas, avec commentaires.

Mortalité et son explication.—Grande mortalité inévitable à cause de la grande proportion de cas très-avancés, souvent complications sérieuses, grande proportion de cas aux mauvaises habitudes préalables, et bas dégré d'intelligence et d'éducation.

Advantages industriels.—Avantages du sanatorium d'occupation pour les convalescents.

Traitement et dernières observations.—Le traitement est uniquement climato-thérapeutique, diététique et hygiénique.

U. S. M. H. S. Sanatorium für Tuberkulose in Fort Stanton, Neu-Mexiko. —(Carrington.)

Einleitung und Historisches.—Dieser Artikel enthält Statistiken vom November 1899 bis zum 30. Juni 1908. Schätzungsweise 1400 Individuen behandelt. Fort Stanton ursprünglich ein Armeeposten um Apachenindianer im Zaume zu halten. Ausser Dienst gesetzt für Sanatoriumszwecke durch Exekutiv-Order des Präsidenten McKinley am 1. April 1899

Beschreibendes.—(*a*) Geographisch: In der Grafschaft Lincoln in Süd-Central-Neu-Mexiko gelegen. Die Reservationsfläche ungefähr 45 Quadratmeilen, eingezäunt. Grosse Flächen nötig für Rinder- und Pferdepferche.

(*b*) Topographisch: Reservation gelegen an den Ausläufern der "Weissen Berge" mit dem Rio Bonito, der es von West nach Ost in einer Distanz von acht Meilen durchquert, Täler, Hügel und Tafelgelände in sich schliessend.

(*c*) Klimatisch: Klima charakterisirt durch wenig Regengüsse, niederen Feuchtigkeitsgehalt, ausgezeichnete Drainage, trockenen Untergrund, grossen Prozentsatz von Sonnenschein und verhältnismässiges Freisein von hohen Winden, mit kühlen oder kalten Nächten.

Charakter der zugelassenen Fälle.—Fälle in allen Stadien aufgenommen. Starkes Überwiegen der mässigen und weit vorgeschrittenen. Hoher Prozentsatz von schweren Complicationen.

Wohnungen.—Grosse Schlafräume. Zelte und Zelthäuser in Verwendung. Beschreibung der letztgenannten.

Verhinderung von Ansteckung.—Vernichtung des Sputums, hauptsächlich durch Verbrennung.

Tägliche Gewohnheiten.—Beschreibung der täglichen Gewohnheiten in der Leitung des Sanatoriums.

Diät.—Reichlich und abwechselnd mit Überwiegen von frischem Rindfleisch, Milch und Eiern. Kein Zwang zu essen.

Ruhe und Bewegung.—Wichtigkeit der Ruhe. Sorgfalt nötig in Bezug auf Bewegung.

Amüsements.—Unterhaltungen und Amüsements notwendig.

Statistiken und Commentare dazu.—Statistiken die ungefähr 1400 Individuen und 1500 Fälle decken, mit Commentaren dazu.

Sterblichkeit und Erklärung hierzu.—Hohe Sterblichkeit unvermeidlich in hohem Prozentsatz weit fortgeschrittener Fälle. Häufige ernste Complicationen. Hoher Prozentsatz mit früheren schlechten Angewohnheiten und geringem Grade von Intelligenz und Bildung.

Industrielle Züge.—Vorteile des Sanatoriums in seiner Fähigkeit, für reconvalescirende Fälle die Möglichkeit zu bieten.

Behandlung und Schlussbemerkungen.—Die Behandlung verlegt sich nahezu nur auf klimatische, diätetische und hygienische Mittel.

THE PREVENTION OF CONSUMPTION AMONG ITALIAN IMMIGRANTS.

By Dr. A. Caccini,
New York.

Work for the prevention of consumption among Italian immigrants in New York should be conducted along such lines as should enable us to reach aliens from the moment they embark in Italy, step by step, through their residence in this country, until their return abroad—should they feel inclined to return. Such work naturally falls under the following heads: (1) Protection of the healthy emigrant on shipboard. (2) Origin of cases acquired in transit. (3) Local measures for prevention of disease. (4) Should infected immigrants be deported? (5) Personal observations on deported immigrants. (6) Scheme by which, through international agreement, importation of consumption may be prevented.

1. The medical visit and inspection of every immigrant before granting him the privilege of embarking is already a safeguard against the importation of obvious invalids, but it is easily perceptible that a great many of them may already be infected in one or even both lungs and still pass the examination and act as infectious centers among their comrades during the trip, leaving after them the infection hoarded in the bedding, wood-crevices, etc., where it defies ordinary disinfection. There is thus danger to the ship's company, members of which mingle freely with the immigrants, who add to the common danger by frequent habits of smoking and chewing, and, of course, of careless expectoration. It is not a rare occurrence that some of them might be ill with consumption long before this disease could be recognized by the ship's authorities and steps taken toward their discharge.

If we consider the economic factors of emigration, we perceive the likelihood that many emigrants may board the steamer weak in body and mind. The chance of catching cold during the trip easily lays bare the weakest spot to infection, so that, when they land in this country, they have the inception of the disease in their lungs. It all depends upon the environment and economic conditions that they find here whether the protective powers of their body shall gain a victory over the obnoxious bacilli or not.

On arriving, many immigrants go into the country and engage in farming, and with the advantages of the open-air work and wholesome food,

succeed in resisting the infection. Others, however, who stay in large, crowded cities like New York, rapidly fall a prey to the infection acquired on the steamer.

2. In varied and extensive work of four years among such cases I have detected 32 cases, all between fifteen and thirty-five years of age, that undoubtedly acquired infection during their passage to America. After careful, discriminating work which allowed me to rule out any other possibilities, I found that 27 out of the 32 were brought here in old steamers where I could find, on personal inspection, the lack of light and air and cleanliness that favor the permanence of infection in the steerage section as well as in the first class. Such inspection was personally conducted by me on those steamers, both at their start from the port when I was abroad and on their arrival here.

The usual history that I gathered from the 32 cases was that of a cold that started in persons completely healthy before embarking during the first month of residence in this country. I took particular pains to rule out every case that evidently originated in this country. All of them were bound for the country to start farming or to work in the open air. The fact cannot be controverted that 27 out of the 32 came in old, slow ships that did not present all the guarantees of cleanliness, light, and air. Moreover, I took particular pains to exclude from the list any one who had suffered from cold or cough for a reasonable length of time before his departure from the old country; also any one who had consumptives in the family.

3. The present crusade against consumption, widely conducted in this country, when properly enlarged so as to reach all classes and races, will be a sufficient guarantee against the spread of the disease. The Americanization of the immigrant will cause him to come in contact with the political as well as the sanitary laws, and with the institutions whose purpose it is to prevent consumption and care for invalids. I am deeply convinced that the opening of special places where the immigrant can hear his native tongue spoken will help the work considerably; for only the already Americanized children of the immigrants go to the present institutions, while the immigrant himself refuses to go to them, following his natural feeling of diffidence and indifference.

As I became interested in the crusade soon after my landing in this country, I have since very often received statements to this effect from a great many of my countrymen who were eager to obtain access to such a place opened for their benefit. I have at present three petitions gathered in three different Italian sections of New York and addressed to me, asking to obtain from the government the establishment of such places. The petitions were handed to me by a committee formed from the audiences at lectures that I gave in Italian to Italians on the prevention of consumption. Here is a

passage from one of these petitions: "Among us poor fathers and mothers of hard-working families we have unscrupulous doctors and druggists who take advantage of our lack of knowledge of the English language to raise large profits, and, besides this, try to prolong our diseased state to such a point that the poor, discouraged workingman does not know what to do with himself, for he does not know the language and must fall a prey to these speculators."

As an indirect proof of my assertion, there is the fact that a large Italian-, French-, and Spanish-speaking clientele began to come wherever I have been soon after the news spread that a doctor conversant with those languages was at hand.

4. It is always a question of what to do with an immigrant if he falls a prey to consumption—whether to treat him here or to advise him to return to his place of origin. Careful consideration of a number of such cases that I saw here brought me to the conclusion that most of those immigrants find better help if kept here for treatment than if sent home, for the simple reason that many of them leave only helpless people to come to this country.

However, in certain cases I advised them to go back, but this I did only after receiving good information from the other side stating that the family condition and the locality would afford a better chance to the patient. I deny most emphatically the theory of those who assume that a consumptive should be sent back as a public burden before one year of residence in this country. Such persons are just as senselessly cruel and ignorant as any one who refuses help to his old parents after their lives have been entirely devoted to his welfare.

In the mean time, it is equally just to see that whenever a consumptive goes back he be followed on shipboard and isolated from the other emigrants, or, at least, kept under strict sanitary observation, so that he cannot be of immediate danger to the others, or of later danger to future steerage passengers. This carrying out of my advice should become a part of the work of a crusade, not less important than the notification of cases to the local board of health and the proper isolation of consumptives in general hospitals or the disinfection of apartments where consumptives have lived.

5. It has been my practice whenever one of my patients had to board a steamer to notify his departure by letter to his consul, as well as to the steamship company and to the steamer's authorities, namely, the doctor and the captain. In my letter to the consul I urged him to use his authority with the ship's authorities for the isolation of the patient. Besides this, I informed the patient fully about his duties, as an infected person, toward his mates, and instructed him how to behave during the trip as to his expectoration and cough. I furnished him with an adequate number of paper cuspidors for the voyage, telling him to throw them into the ocean after using them.

Some circulars giving instruction to patients from the New York City Board of Health were always given to the patient. Moreover, after examining the patient, joint by joint, I always provided him with a letter to the captain and one to both the company's doctors, and, when present on the steamer, to the Italian Royal Commissioner. I took great care in putting everything up to the patient's conscience as a matter of his interest to take every precaution. I found that the patient was always eager to get information and to learn how to follow it, just as the ship's authorities were to know of his presence and to take proper care for his isolation.

In the case of my communicating with the British consul, the letter was followed by a very pleasing answer, with assurances that steps would be taken by the consulate to see that the sanitary laws would be enforced. In every line that emanated from an Italian port I found the work most satisfactory. It is known that twelve years or so ago the Italian government passed a special bill for the protection of Italian emigrants. By this law every ship which carried emigrants, besides making certain changes for the better care and limitation of the number of emigrants, the creation of special dining-rooms, etc., provided for the establishment of two infirmaries—one for common diseases, the other for infectious diseases. The latter is under the personal care of a medical officer of the navy, who has besides that the control of every one of the passengers and that of the crew and officers abroad, being the "sanitary officer" of the steamer. The sanitary code strictly prohibits the embarkation of a consumptive case, generally speaking, but lately I succeeded in having a resolution adopted to leave their embarkation at the discretion of the Royal Medical Commissioners. Through my friendly relations with all these gentlemen it has been easy for me to get from them the proper permission to take on board cases of consumption which found splendid care in the "infirmary for infectious diseases" under the supervision of the Royal Commissioner. From the latter I have learned how well the patient behaved during the trip, strictly following my directions as to the destruction of the sputum, etc., so that he could be allowed on deck during the day. The infirmary was regularly cleaned and disinfected on the vessel's arrival in Italy.

6. The idea has occurred to me that my private enterprise could be easily transformed into a public one, carried out by the board of health authorities. The sanitary code includes the notification of every case of consumption, enabling the board of health to locate every case of the disease recognized as such. The bill recently passed in Albany enforces the disinfection of those dwellings that were inhabited by consumptives, while the immigration authorities do their best to prevent the landing of cases of consumption that might be overlooked among the passengers. But their effort is continuously frustrated by the steady landing of cases that already bring the

germs with them, for they acquire them on board. This is the greatest danger, for these aliens, with little idea of the new country, its institutions and laws, develop the infection and spread it around long before being recognized and located and, of course, taken care of. While good results are shown in locating and identifying cases here, the main point is, of course, to prevent the importation of the disease.

Through the sanitary authorities proper steps should be taken to control the cleanliness of the immigrant steamers and to provide for their disinfection in regard to consumption. Every case followed in this city should be notified to the steamer's authorities and to the respective consuls of the lines, and the case properly instructed before boarding the steamer. The steamer authorities could easily be compelled to notify the case to the sanitary authorities aboard, just as they would do for any other contagious disease, and they would take the necessary steps to follow up the case. Thus, a broad net would be made of friendly meshes of international control, just as efficient as any international congress could make it. It would probably—some time in the near future, I trust—lead to the creation of an International Board of Health, such as has often been advocated by scientists the world over. I sincerely hope that early in the future our work will have as one result the realization on the part of the people of the fearfulness of consumption, which would cause them to look upon an outbreak of the disease as they now look upon cholera, lepra, and kindred plagues.

It is more or less incumbent on the physician to do away with every artificial barrier of political differences among nations through a continuous interchange of new discoveries and views. Such a work is most important. Official statistics from abroad show the terrific effect of immigration on the increase of consumption, alcoholism, and crime abroad from immigrants who acquired them and return with them to their native villages. If nothing else, this alone should be sufficient to show how good and necessary a work would be done through the adoption of such a plan as the one that I propose.

Here again in prevention, and not in suppression, is the real and most efficient work; it is among the aliens that we must search for the sick, for their power to contaminate is far-reaching in the early stages of the disease as well as in the advanced. The toil of the alien contributes to the wealth of the country. But in the process he acquires consumption and gives it back to us unconsciously. It is for us to preserve our own safety by assuring his.

Italy is following this Congress and its efforts with the greatest interest, for the best part of its population is decimated by consumption acquired by returning immigrants who have worked in crowded American cities. Italian legislation for the prevention and suppression of tuberculosis is the oldest, and centuries ago famous works were written on the subject.

It is my sincere hope that the next Congress will be gathered in Rome.

The year 1911 will mark the fiftieth anniversary of Italian unity. Great preparations are being made for its celebration, and I am certain that the population will give much of its attention to such a gathering as this.

Why Prevention and Treatment of Consumption Among Italian Immigrants in New York are Unsuccessful. How to Remedy It.

According to authoritative statistics of the boards of health of Naples, Rome, and Milan, about 1000 persons die annually from various forms of tuberculosis in each of these cities; the same statistics show that about 10,000 cases of this disease are also constantly in evidence, without taking into account those patients who, being pronounced consumptive, return to their homes in the country after a more or less lengthy sojourn in the densely populated districts. Moreover, these statistics reveal a constantly growing state of morbidity among children, principally due to insufficient nourishment—ignorance in nursing, or inability or disinclination on the part of the mother to nurse.

The Hospital of Santo Spirito in Rome treats annually from 13,000 to 15,000 patients, not counting those cases entered at the Outdoor Department; the Hospital San Giovani in the Laterno receives about 9000 patients, and other hospitals treat a number proportionate to their importance and facilities. The statistics of the new Policlinico—capable of receiving more than 2000 patients—have not yet been published.

It is conceivable that among the vast number of Italian immigrants who annually arrive in New York there must be some incipient cases of tuberculosis among them. These cases rapidly augment under the conditions which the Italians find here—their crowding together in small and ill-ventilated tenements; their lack of proper food required by new climatic conditions, and their general ignorance of the principles of hygiene. To this ignorance of hygiene is added the ignorance of securing proper medical treatment.

In Greater New York there are nearly half a million Italians, principally from southern Italy and Sicily, and consequently from a climate very different from that which they find here. They miss the outdoor life and the oxygen-burdened atmosphere of their native land—which latter allows them to support life on the most primitive forms of nourishment—and these elements are exchanged for the crowded conditions which obtain in the tenement-houses and the ignorant assumption that vitality can still be supported by their native food. Thus their fine physique and natural mental activity—capable of great things under proper conditions—soon degenerate into a mere fight for life, and many of them return home broken in spirit and health.

These conditions are most susceptible to the invasion of infectious diseases; the vitality of the parents being weakened, it follows as a matter of course that the organism of the children acquires poor resistance against those diseases which are peculiar to the young.

Physicians who practise among the Italians are only too well aware of this fact, as they are of the reluctance of the patients to take the fullest advantage of the curative possibilities offered by the local hospitals. This point is emphasized by my own experience:

At the Cornell University Medical College in only a single year there has been admitted a single patient affected by tuberculosis.

At the Manhattan Dispensary for Tuberculosis, conducted under the auspices of the Board of Health, in three months three applied for treatment.

At the Bellevue Hospital Dispensary during the same period of time three patients applied, one of them being a case already mentioned as entered at the Cornell Dispensary.

I believe that this percentage represents fairly the cases entered at similar dispensaries, but it is obvious that it by no means represents the tuberculosis patients present among the local Italian population. We have seen the rate of morbidity in an Italian city of half a million inhabitants. We have also seen the rate for tuberculosis in such a city. In New York, also with half a million Italians, 90 per cent. poor laborers, we note only several hundred registered in hospitals, and of this number only a few are tuberculous. Is it possible that this represents the average morbidity in a population living in less favorable hygienic conditions than in Rome, or Milan, or Naples? It shows that Italians do not go to the hospitals, owing to their social conditions.*

What can be done to alleviate the already stricken, to prevent the disease from spreading, and to fortify the constitution of the Italian immigrant against its encroachments?

*The Italians here retain the medieval system of their own small native villages, preferring to live only among their kind. So that, in a city like New York, they are practically isolated and entirely away from the influence of American institutions. As soon as the Italian arrives in New York, he is met by a fellow-countryman, a padrone (more active than skilful), by whom he is directed in every step of his life. This padrone provides the immigrant with work, and abuses him in every possible manner. When he is sick, the padrone suggests a doctor, and the doctor and padrone both suggest an apothecary, all three of whom take advantage of his incapacity. If he has some money, he is advised to deposit it in a certain bank, and by degrees is deprived of it. So that, when ill, and his money is finally all gone, he is sent to a public hospital, for these speculators have no reason to look after him any longer. In these circumstances the immigrant has no personal initiative, for he knows nothing about New York, its institutions, its benevolent societies, etc. Besides, the English language is entirely unknown to him, for he has been dealing only through interpreters. Under such conditions, we may argue how many more tuberculous patients are to be found in half a million Italians in New York than in half a million in an Italian city? Nevertheless, a very small proportion of them succeed in finding institutions and in going to them. But these are principally Italians born in America, who know the language.

As the Italians show a disinclination to avail themselves of the help to be derived from American institutions, we must ourselves break into their Chinese wall; we must go to them and forcibly show them how they may be benefited.

The idea has occurred to me that it would be possible to open a dispensary in the Italian quarter especially for the treatment of tuberculosis, where, for certain hours during the day, Italians could find a physician and nurses speaking their own language, and both able and willing to give not only treatment for the cure of the disease, but also advice on hygiene which would cause the patient to understand his or her responsibility toward intimates and friends. Besides such help as the dispensary could offer, the nurses might visit the patient in the home, give advice there, and obtain valuable information which might be availed of by the board of health.

Such an institution, if properly directed, would not cost more than $5000 a year, and might, as its value was demonstrated, increase its functions through branches in various parts of the city. Tuberculosis patients among the Italians would naturally incline toward such an institution; they would learn the menace they are to the community through expectoration and other causes, and would become conscious of their responsibilities, while others now healthy would learn, and gladly learn, how to protect themselves from infection.

An important auxiliary to the scheme would, it seems to me, be the public lectures on the prevention of tuberculosis which I am giving in the Italian language in various parts of the city under the auspices of the Committee on the Prevention of Tuberculosis of the Charity Organization Society and the Board of Education. The results of these lectures show me that the Italian is ready and quick to learn and eager to avail himself of advantages when offered under trustworthy and authoritative auspices. On the close of a lecture many poor Italians have come to me asking where they could find help. Their ignorance of the language, their complete ignorance of the city and its institutions, cause them to fall an easy prey to their own more crafty countrymen who would benefit themselves by their misfortunes. Nor would the Italian language suffice if utilized by American physicians and nurses, for many of the Italians here speak only their own dialect, and would scarcely understand classical Italian as spoken by a foreigner. Many times they have said to me: "Oh, Doctor, I wish you would persuade those gentlemen [the Committee on the Prevention of Tuberculosis and the Board of Public Instruction] to open a place in our quarter where we may hear how to cure ourselves in our own language—where we may hear and understand what is best to do for ourselves and for our neighbors."

For these reasons I think it would be advisable to open a place solely

for the Italian tuberculous patient under the conditions indicated—where the Italian might hear his own language or dialect, where patients might be received from other clinics, and where the rules should be those observed in kindred dispensaries, the entire scheme being placed under some public administration.

With the establishment of such an institution, the press and the local Italian consulate would give the required publicity among the local Italians. Moreover, I can promise coöperation, through personal friends, of the Italian Ministry of Foreign Affairs and of the Italian Embassy in Washington.

With increasing work, the really paramount function of medical science, that of prevention of disease, could be conveniently and advantageously augmented. Interesting illustrated lectures could be given at various hours, and the knowledge thus entertainingly imparted would be sure to spread among the Italian population, causing Italians thereby to seek the most convenient means of cure, to be inspired with an intelligent apprehension of infection and an effective method of prevention.

Pourquoi les Efforts pour prévenir et traiter la Phtisie parmi les Immigrants italiens n'ont pas eu de Réussite.—(CACCINI.)

Les villes italiennes d'une population d'environ 500,000 habitants (Rome, Naples, Milan, etc.) ont une moyenne de mille fatalités annuellement par la phtisie. Il y a 10,000 personnes, infectées de la phtisie, qui vivent dans les grandes villes de l'Italie.

Les statistics des hôpitaux alliés de Rome donnent de 13,000 a 15,000 par an affectés par cette maladie.

A New York avec une population italienne de 700,000 de 2000 à 3000 sont traités dans les hôpitaux. Cette population est composée presque entiérement par de pauvres immigrants.

Pourquoi cette différence?

Les Italiens de New York vivent entre eux avec mœurs et des idées du moyen-âge, entourés par des speculateurs sans scrupules. Leur ignorance de la langue et des institutions du pays donnent la meilleure chance du monde aux speculateurs pour les abuser sur tous les points. La différence du climat et de la nourriture, le manque d'air frais contribuent à créer un pourcent très haut de morbidité et de mortalité parmi eux; la tuberculose sévit. Bien peu d'Italiens affectés par la phtisie se font traiter aux institutions américaines. Dans trois des plus grandes institutions on n'a eu que 8 applications dans une année et celles-là par des Italo-Americains.

Quelle devrait être la proportion en comparaison avec les villes italiennes ayant une population composée de 90% de laboureurs?

Les raisons pour lesquelles ils ne frequentent pas les institutions sont les mœurs du moyen-âge et les speculateurs.

Rémèdes:

Américanisation des Italiens, dispensaires italiens dans les quartiers italiens ayant un corps de médecins parlant l'Italien.

Plans pour le dispensaire. Le dispensaire pourrait être rendu attractif par des séries de réunions sociales et par des lectures.

J'ai reçu beaucoup de pétitions dans ce sens après mes conférences sur l'hygiène et la prévention de la phtisie.

Une institution de ce caractère coûterait à peu près $5000 par an.

Que cette idée est praticable est prouvé par le fait que beaucoup de tuberculeux se sont presentés lorsque j'étais attaché a des institutions américaines. Ils ont expliqué qu'ils se sont presentés en sachant qu'on pouvait les comprendre.

Warum Verhinderung und Behandlung der Schwindsucht unter den italienischen Einwanderern in New York ohne Erfolg ist.—(CACCINI.)

Italienische Städte von ungefähr 500,000 Einwohnern (Rom, Neapel, Mailand, etc.) haben ungefähr 1000 Todesfälle von Schwindsucht im Jahre. Es leben beiläufig zehntausend Fälle in grossen Städten.

Statistiken des Hospitalverbandes von Rom geben 13,000 bis 15,000 kranke Personen im Jahr an.

In New York werden von 700,000 Italienern 2000–3000 in Hospitälern behandelt. Die Bevölkerung besteht fast ausschliesslich aus armen Einwanderern.

Woher kommt nun dieser Unterschied? Die Italiener in New York leben in schlechten Quartieren mit mittelalterlichen Gebräuchen und Ideen, umgeben von gewissenlosen Spekulanten. Ihre Unkenntnis der Sprache und Einrichtungen giebt den Spekulanten die beste Gelegenheit, sie in jeder Hinsicht zu missbrauchen. Der Unterschied in Klima, Nahrung, Mangel an frischer Luft, alles dieses erhält einen hohen Prozentsatz von Kränklichkeit und Sterblichkeit unter ihnen, und die Schwindsucht schnellt in die Höhe.

Sehr wenige italienische Schwindsüchtige gehen nach amerikanischen Heilstätten. In drei der grössten Institute suchten nur acht Fälle Aufnahme und diese waren Italo-Amerikaner.

Was sollte aber das Verhältnis sein im Vergleiche zu italienischen Städten mit einer Bevölkerung von 90% Arbeitern?

Die Ursachen, dass Heilstätten nicht häufig aufgesucht werden, sind mittelalterliche Lebensgewohnheiten und Spekulanten.

Abhilfe:

Amerikanisierung der Italiener, italienische Ambulatorien in den italienischen Quartieren mit italienisch sprechendem Personal.

Plan für solch ein Ambulatorium.

Gesellschaftliche Unterhaltung und Vorträge würden diesen Platz zu einem anziehenden Mittelpunkt machen.

Es sind, um dies zu erreichen, viele Zuschriften an mich gekommen nach Vorlesungen über Hygiene und Verhütung der Schwindsucht.

Kosten veranschlagt auf jährlich $5000.

Die Durchführbarkeit dieser Idee ist durch die Tatsache bewiesen, dass eine grosse Menge Schwindsüchtiger kamen, wo immer ich an einer amerikanischen Anstalt zu tun hatte. Sie gestanden ein, dass sie deshalb kamen, weil sie wussten, dass sie verstanden werden würden.

TUBERCULOSIS IN THE PHILIPPINES.

By Fernando Calderon,
Professor of Obstetrics, Philippine Medical School, Manila, P. I.

People of the Philippine Islands have not escaped the baneful influence of tuberculosis; for, like other countries, the archipelago pays a tribute of victims to this terrible enemy of the human race. The mortality from tuberculosis in the provinces of the archipelago is extremely large, but it is almost impossible to state with accuracy the annual average of deaths due to this cause. This difficulty is due to the fact that many of the towns are far from lines of traffic, and in most of them there are no resident physicians who could undertake the gathering of demographic statistics for each community. Such statistics naturally form the indispensable basis of medical geography, and, owing to the prevailing conditions, this is a branch of science as yet unknown in the remote regions of the far East.

In preparing this paper I have had recourse to the records of as many institutions as seemed capable of throwing some light on the subject, but because it has been entirely impossible to secure statistics on tuberculosis from the rest of the archipelago I have been obliged to limit myself to those showing the movement of tuberculous cases in the city of Manila.

The following figures are taken from the records for the Bureau of Health, from those of the Army Medical Department, and from the general hospitals of Manila, namely, the Civil Hospital, the Hospital of San Juan de Dios, and that of St. Paul. They are sufficiently high to indicate that tuberculosis is a very important etiological factor in the mortality occurring in this tropical climate.

TABLE I.—RECORD OF CASES ADMITTED FOR TREATMENT AT THE CIVIL HOSPITAL, MANILA, BEGINNING WITH THE FISCAL YEAR ENDING JUNE 30, 1902.

Fiscal Year.	Total Patients.	Tuberculosis.	Per Cent.
1902	1,870	12	0.64
1903	2,295	24	1.04
1904	1,895	32	1.68
1905	1,641	30	1.82
1906	1,523	24	1.57
1907	1,310	23	1.75
1908	1,487	35	2.35
Total to June 30, 1908	12,021	180	1.49

However, the above does not include tuberculous cases who came to the hospital for treatment, but who were not admitted as patients. It must also be considered that the patients are a select class and largely European.

TABLE II.—RECORD OF TUBERCULOUS CASES ADMITTED FOR TREATMENT AT ST. PAUL'S HOSPITAL, MANILA, DURING THE YEARS 1905, 1906, 1907, 1908, SINCE ITS ESTABLISHMENT IN APRIL, 1905.

Year.	Total Patients.	Tuberculosis.	Per Cent.
1905	..	36	..
1906	..	86	..
1907	..	71	..
1908	..	43	..
Total	5,103	236	0.62

This low percentage of tuberculous cases admitted to St. Paul's and the Civil Hospital is perfectly accounted for by the fact that most of the poorer people in Manila, on deciding to enter a hospital, go to the Hospital of San Juan de Dios, where it is easier to secure admission, rather than to the two above-mentioned institutions, where the technical personnel makes a careful selection of the clinical cases.

This is not the case with the medical and surgical dispensary established on August 27, 1907, under the auspices of the Philippine Medical School, in the building of St. Paul's Hospital. To this dispensary are admitted as out-patients, and given free medicines, all sick poor who present themselves to consult a physician. The following table shows the percentage of tuberculosis among these patients:

TABLE III.—DISPENSARY OF THE PHILIPPINE MEDICAL SCHOOL.

Period.	Total Patients.	Tuberculosis.	Per Cent.
1907			
August 20 to 31	51	8	1.56
September	150	22	14.66
October	187	23	12.29
November	175	23	13.14
December	120	18	15.00
1908			
January	174	20	11.49
February	185	22	11.89
March	195	12	6.15
April	145	17	11.72
May	160	18	11.25
June	202	24	11.88
Total	1744	207	11.86

This percentage (11.86) approximates that recorded at the Hospital of San Juan de Dios.

TABLE IV.—STATISTICAL ABSTRACT SHOWING THE NUMBER OF ADMISSIONS AND THE PROPORTION OF TUBERCULOUS CASES AT THE HOSPITAL OF SAN JUAN DE DIOS DURING THE FIVE YEARS 1903 TO 1907 INCLUSIVE.

Race.	Total Patients.	Tuberculosis.				
		Pulmonary.	Laryngeal.	Abdominal.	Other Regions.	Total.
Filipinos.....	6591	857	31	23	27	938
Europeans.....	2357	66	5	3	7	81
Total.....	8948	923	36	26	34	1019

The total percentage of tuberculous patients is 11.89. An abrupt and remarkable increase over this proportion of tuberculosis is seen in the hospitals of Bilibid Prison, the principal penal institution of the Philippines. The annual report of the Bureau of Health for the year ending June 30, 1907, gives the following figures:

TABLE V.

Prisoners Sick.	Tuberculosis.	Per Cent.
326	153	46.6
Deaths.		
180	58	32.2

However, the percentage of tuberculous patients compared with the total prison population is only about four. The insular government, in view of the number of tuberculous prisoners, has deemed it necessary to separate the tuberculous and non-tuberculous patients. This has been done by housing the sick in two buildings entirely independent of each other, namely, hospitals A and B, with a view to preventing the spread of tubercular disease among the inmates of the prison.

On the other hand, the proportion of individuals attacked by tuberculosis among the American troops stationed in the islands is comparatively low, as the following report will show:

TABLE VI.—REPORT OF CASES OF PULMONARY CONSUMPTION OCCURRING AMONG AMERICAN TROOPS IN THE PHILIPPINES DURING THE FISCAL YEARS 1903 TO 1908 INCLUSIVE.

Year.	Strength of Command.	Number of Admissions.	Per Cent.
1903.....	37,768	192	0.508
1904.....	23,818	104	0.437
1905.....	11,966	65	0.541
1906.....	11,057	64	0.579
1907.....	11,885	68	0.549
1908.....	12,802	64	0.499

TABLE VII.—DEATHS FROM TUBERCULOSIS IN THE CITY OF MANILA BY QUARTERS.

Bertillon's Number.	Diseases.	1903.				1904.				1905.				1906.				1907.				
		First.	Second.	Third.	Fourth.	First.	Second.	Third.	Fourth.	First.	Second.	Third.	Fourth.	First.	Second.	Third.	Fourth.	First.	Second.	Third.	Fourth.	First.
	Total number of deaths for the year	9358				10,337				8741				9182				7281				
	Total number of deaths	1652	1911	2710	3085	2256	2350	2962	2769	1856	1649	2601	2635	1932	1848	3468	1934	1569	1280	1936	2502	2570
26	Tuberculosis of larynx	11	16	11	5	14	29	16	26	8	12	9	3	2	8	3	7	5	3	2	2	5
27	Tuberculosis of the lungs	161	219	199	261	233	254	230	241	238	234	293	260	273	296	388	284	249	227	239	258	272
28	Tuberculosis of meninges	3	4	4	6	4	11	14	10	5	6	11	12	7	11	16	11	8	9	7	13	7
29	Abdominal tuberculosis	12	7	9	8	10	10	8	16	9	9	11	11	7	10	17	12	9	7	8	12	8
30	Pott's disease	0	1	0	0	1	1	0	0	0	2	0	1	0	0	0	0	0	0	1	0	1
31	Cold abscess and abscess by congestion	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
32	White swelling	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
33	Tuberculosis of other organs	2	0	1	1	0	0	0	1	3	2	2	1	3	1	3	2	1	1	1	2	2
34	General tuberculosis	0	1	3	2	5	4	4	3	1	3	10	5	5	6	11	5	4	3	8	9	15
35	Scrofula	3	1	3	5	1	1	1	0	1	4	5	2	0	2	5	0	3	1	0	0	1
	Total tuberculosis mortality	193	250	232	288	269	310	273	298	265	272	341	295	297	334	443	321	280	252	266	296	311
	Percentage of total mortality	11.68	13.02	8.56	9.33	11.92	13.19	9.21	10.76	14.27	16.49	13.11	11.19	15.37	18.07	12.74	16.59	17.84	19.68	13.73	11.83	12.10
	Total tuberculosis mortality for the year	963				1150				1173				1395				1094				..
	Percentage of annual mortality	10.27				11.12				13.41				15.19				15.01				..

The above figures, during the last two years (1906 and 1907), show that the mortality in Manila from tuberculosis, compared with the total mortality, was 15 per cent., which, on comparison with the 10.68 per cent. of the United States, the 9.7 per cent. of England, and the 9.1 per cent. of Prussia, is seen to be a high proportion.

This figure of 15 per cent. certainly does not include all the cases of tuberculosis developed in Manila, as many individuals suffering from tuberculosis die of some intercurrent disease. The results of the first 150 necropsies made in the morgue of the Philippine Medical School by Dr. Philip K. Gilman are as follows:

TABLE VIII.—TUBERCULOSIS AT AUTOPSY.

Number of Necropsies.	(*a*) Died of Tuberculosis.	(*b*) Tubercular Lesions in those Dead of Other Causes.	(*c*) Total
150	47	13	60

Per cent. of (*a*) 31.3
Per cent. of (*b*) 8.7
Per cent. of (*c*) 40.0

The figures which have been quoted lead me to the conclusion that at least 25 per cent. of the sick in the city of Manila are affected with tuberculosis, the pulmonary form strongly predominating.

What are the principal causes of this wide dissemination of tuberculosis in the Philippines? It is not my intention here to enter upon a general discussion of the question, but I shall confine myself to certain local peculiarities, directly related to the tuberculosis problem, which are due to the nature, habits, and customs of the Filipino people.

There exists among the lower classes, and even among many cultivated families in the Philippine community, the densest ignorance regarding the existence of bacilli in the sputum of patients suffering with pulmonary tuberculosis, and of the transmission of the disease by means of the expectorated material in a dry and pulverized state. Owing to this ignorance, there continue from generation to generation in this country insanitary domestic and social customs which favor the development and spread of tuberculosis. It is very common for the families of the poorer and middle classes to sleep together in a single room, which is not always large, the occupants lying on the floor itself with nothing but a single mat between it and the person of the sleeper, known by the name of *petate*. If a tuberculous person lives in the household, where he deposits his sputa on the floor, it is not to be wondered that infection is conveyed to other members of the family.

At meal-time the whole family gathers around the *dulang*, or table especially intended for serving, and each individual takes up his food from a common dish with the five fingers of his own hand, which he has not washed beforehand and which retain under the nails a rich microbian flora. A single spoon, used to take up the liquid articles of food, passes from mouth to mouth. There are Filipino households in which drinking-glasses are replaced by the traditional *tabo*, a utensil made of the shell of the cocoanut, which is the only vessel in use, and, as it passes from hand to hand and lip to lip, sometimes serves as an excellent vehicle for the transmission of tuberculosis. A pleasing manifestation of Filipino politeness and hospitality is the custom in vogue in every house of offering to visitors cigars, cigarettes, and betel-nut, but these articles, at the same time that they meet the requirements of courtesy in social intercourse, occasionally transmit Koch's bacillus, especially when some member of the household is afflicted with tuberculosis.

Where tubercular infection exists in this country, one of two things may occur: either the victim may die without having received the services of a physician, after having served as a permanent focus of infection for the persons about him; or his family may call in the services of an untitled doctor, quack, or healer with herbs, who, on entering the household, charged with the sacred mission of curing the sick, not only fails to help the situation, but sometimes unintentionally serves to spread tuberculosis in carrying out some of the irrational practices of his empirical therapeutics. Among these I will mention one which consists in making, on the arms or thighs, fonticuli from which issues prolonged and abundant suppuration, which weakens the body and converts it into an excellent field for the reception and multiplication of pathogenic microörganisms, including the bacillus of Koch. It may easily occur that the quack himself is a perambulatory victim of tuberculosis who carries the infection from place to place, and who plays an extremely important rôle as a vehicle of infection every time he uses on his patients the primitive measure termed *buga* by the natives. This proceeding consists in the grinding and mastication, between the teeth of the quack, of vegetable substances such as leaves, flowers, fruits, and the roots and sap of certain medicinal plants, all of which, after mixture with the saliva, is spat out directly from the mouth of the healer upon the part supposed to be diseased. This remedy is especially applied to wounds, ulcers, erysipelas, phlegmon, eczema, lupus, etc. Some Chinese and native laundrymen have a similar practice, which consists in blowing out mouthfuls of water in a spray over starched clothes to moisten them while they are being ironed. Both practices are favorable to the transmission of Koch's bacillus when the mouth from which the medicinal herbs or the water issues happens to be that of a person suffering from tuberculosis.

Another ordinary means of transmission of the infection is common in the

Philippines. I refer to the habit of kissing. It is a custom learned from Spanish ladies, and current among Filipino women of good social position, to kiss each other being a proof of affection. Ignorant of the danger which they are incurring, Filipino women of high position greet each other with a kiss at meeting and parting; and it may be that one or the other has the infecting agent present. This habit is practised not only by women among themselves, but also by Filipino children, many of whom are probably infected with tuberculosis in this manner. How often the parents themselves have encouraged their children to kiss tuberculous visitors who take with them everywhere the infection seated in their lungs! And how often the parents themselves have placed, unintentionally, the fatal germs of tuberculosis on the fresh lips of their tender children!

The religious fanaticism inculcated since remote times in the Filipino people has sometimes gone beyond the limits of reason and hygiene, by organizing pilgrimages during which thousands of persons journey far to fall on their knees and to kiss the feet of some miracle-working saint venerated on the altars. Up to this point there is nothing extraordinary in the practice; it is merely a manifestation, more or less worthy of respect, of the religious spirit. However, the principles of prophylactic hygiene are entirely isolated when thousands of lips, belonging to thousands of mouths of all sorts, pass in succession over those unwashed and not disinfected feet; some of these will, in the act of mumbling a prayer, assuredly leave behind the tubercle bacillus with its terrible consequences. The same may be said of the mystical kisses which many pious Filipinos imprint on the dusty floors of the churches.

Side by side with the religious fanatics, there exists among the Filipinos an almost fanatical addiction to the vice of cock-fighting. A very great number of natives give their most solicitous care to the fighting-cock, destined to combat in the public cock-pits, and these birds are subject to a laryngeal disease,* the symptoms and treatment of which I shall briefly set forth. The cock opens its mouth frequently and shows loss of appetite and distress upon swallowing. A simple inspection of the mucous membrane of the fauces demonstrates the presence of bleeding, grayish granulations, the size of millet-seeds, which multiply rapidly and spread toward the pharynx, larynx, and trachea, the process being accompanied by great emaciation of the cock, which progressively loses its voice and appetite, and ends by being unable even to swallow water, owing to acute dysphagia. The animal finally dies.

The disease is contagious to such a degree that the other fighting-cocks tied in the neighborhood of the sick one run the gravest risk of being infected. Such a result has been recorded in many cases, so that it is necessary

* This disease is known among the Tagalogs by the name *sampaga*.

to adopt energetic measures of isolation and disinfection to stop the spread of the disease.

Customary treatment of this disease consists in placing on the granulations themselves a topical application composed of lemon-juice and the resin of *tuba-tuba* and *pandacaque*, mixed with a strong alum solution—a remedy which does positive good only when the infection is carefully treated from the very start, and is perfectly useless in causes already advanced.

The etiology of this contagious affection is as yet unknown, but it would be interesting and useful to make a bacteriological study of it, for it may possibly be a form of tubercular disease in the birds, and transmissible to man, especially to the Filipino, who lives at home in intimate contact with his fighting-cock.

I will now give a brief résumé of the measures which have been adopted by the insular government to stop the spread of tuberculosis in the Philippines.

If it be a recognized principle of public hygiene that the sanitation of towns is in inverse ratio to the development of tuberculosis in them, it must certainly be admitted that the prevalence of tuberculosis in the Philippines, great as it still is, must have diminished in the course of the past decade.

In making this statement, which may possibly appear gratuitous, it would, of course, have been desirable to prove its truth with comparative statistical data derived from the two régimes—the Spanish and the American; but this meets with the insuperable difficulties arising from the fact that during the late régime the few demographic statistics that were collected did not always show the real conditions, owing to the circumstance that they lacked the basis of this line of study, namely, a good census of the population.

Under American sovereignty very striking sanitary enterprises have been undertaken with great perseverance, both in Manila and in the other cities of the archipelago. To confine ourselves to Manila, it can truthfully be said that its old streets have, as a rule, been put in good condition; some have been widened and converted into broad avenues, while the muddy ponds and pestilent pools of stagnant water, which during the rainy season were excellent breeding-grounds of frogs and mosquitos, to the detriment of the public health, have been removed in the central portions of the town. Clean, well-planned streets have been opened, to the great satisfaction of the citizens, across wide areas of what formerly was low, muddy land which has been changed into fine, well-drained, modern suburbs or "additions." The deep depressions, full of slime and a thick growth of wild vegetation, that surrounded the old walled city, have ceased to be the home of toads and snakes; they have given place to the modern, sanitary boulevards that the municipality is building. A number of the sluggish tidal creeks, known as esteros, that run through the city, their blackish waters charged with the waste and excreta of the population, have been canalized, and others have been filled,

the new soil well packed down, and streets constructed in their stead. Plazas, parks, and public gardens, shaded with fresh, luxuriant vegetation, have multiplied, and form health-giving breathing-places for the poorer classes.

The public markets have been modernized and put in sanitary condition. They are no longer places for the sale of household necessities, and at the same time collections of huts and shacks for the shelter of men and beasts who deposit their excreta on the spot. The number of markets has been increased, new ones being built in the outlying portions of the city, and it may be said that all these public places for the sale of the daily food of the population compare favorably in drainage and cleanliness with similar establishments in Europe and America. As a culmination of these sanitary labors, the city has almost finished a modern sewer, and an enlarged water-works system will soon afford Manila an abundant supply of pure water.

This same sanitary campaign has been extended to the provinces, although on a smaller scale. It may be said that an honorable rivalry exists among them in putting their respective towns in the best sanitary conditions that their pecuniary resources will allow. All the provinces have heartily assisted in the plan adopted by the general government of sinking artesian wells for drinking purposes. These wells already flow in many towns, and the result on the public health has been gratifying.

Despite the progress already made during the very short period of the American régime, it is well to state that there still remain many unsolved questions included in the absolutely vital problem of sanitation, and directly related to the propagation of tuberculosis and other infections.

One of these consists in the pressing necessity of filling in and draining many marshy tracts in Tondo, the most populous quarter of Manila. Over these marshy tracts all huddled together hundreds of unsanitary dwellings almost touching the slime, dwellings that serve as permanent foci of infectious diseases such as cholera, tuberculosis, beriberi, malaria, etc. A similar problem is that of the urbanization and widening of certain alleys, miscalled streets, in the St. Nicholas district. In all these unhealthful places live hundreds of poor families, in unsatisfactory, badly ventilated dwellings, who suffer the heaviest loss not only from epidemic but also from endemic diseases in general, and tuberculosis in particular, which silently decimates their numbers.

There is no doubt that the construction of special suburbs or quarters for these poor people, who for the most part belong to the laboring class, together with cheap but sanitary houses, would improve the condition of the city, and in particular would diminish the contingent of victims of tuberculosis.

This consideration takes us naturally to the question of what the Philippine government has done, during American occupation, and what still re-

mains for it to do, in order so to alleviate the condition of the people as to prevent their becoming foci for the spread of the disease among their fellow-citizens.

Candor obliges me to confess that up to the present moment there has not been begun in the archipelago a real antituberculosis campaign, which would have much effect in limiting the spread of the disease. All that has been done by the Bureau of Public Health has been the distribution of bulletins and circulars concerning the nature of the disease, its effects, prophylaxis, and means of propagation, and an effort has also been made on the part of schools, churches, and factories to have an ample provision for cuspidors and other receptacles for the sputa of the diseased. The sanitary regulations of the city of Manila forbid expectoration on sidewalks and the public plazas, and earnestly recommend the use of tuberculin on dairy cows. Very recently, also, the public schools have been spreading some information regarding the propagation of tuberculosis.

This delay on the part of the health authorities in attacking the tuberculosis problem is quite intelligible when it is remembered that since the institution of the Board of Health in October, 1901, and its change into the Bureau of Health in 1905, all its activities have been concentrated on the limiting of cholera, smallpox, bubonic plague, and leprosy, which are perennial scourges in the Philippines, and practically all the money yearly appropriated for this bureau has been spent in fighting these dangerous and communicable diseases.

I must repeat that in this matter the Filipino people are extremely ignorant. They do not know that Koch's bacillus exists, or that the sputum of the sick is the vehicle of transmission, or that there is any necessity of guarding one's self against the contagion. The Philippine government, therefore, would be carrying out a humanitarian duty in teaching that people the danger they run from this terrible disease.

It is not enough to direct the schools to give the children instruction on this point, or to distribute among people who never read bulletins on tuberculosis, written with more or less skill. One thing more is needed, namely, a direct, active propaganda carried on by popular lectures given in the native dialects at central points, and these lectures must not only explain the various modes of transmission of the disease, they must also insist on the urgent necessity of changing certain deep-seated native customs that lend themselves to the transmission of Koch's bacillus.

There should be organized for this purpose, in the capital of the archipelago, a central propaganda committee—a kind of antituberculosis league. This committee should stimulate the zeal of those Filipino or American physicians who know some one of the native dialects, and should invite them to give one or two lectures a month in their respective places of residence.

It is true that in most of the towns there is no physician, but this difficulty may be overcome by assigning the task to some educated person, such as is to be found in all towns, and assisting him with copies of manuals written for the purpose. In this connection it is to be said that the insular government, in response to the long-felt want of physicians in the provinces, has created a Philippine school of medicine, with a modern course of instruction. It has made liberal appropriations for the construction of a splendid medical school and a new general hospital with modern clinics. The new buildings, now under construction, will be finished in a year and a half, and will undoubtedly be among the largest and finest in the far East. Beside the new hospital and medical school under construction there stands the impressive building of the Bureau of Science, a center of scientific work from which have issued very notable original studies on various phases of tropical diseases. It serves, indeed, as the right hand of the Bureau of Health in all the campaigns against epidemics and many diseases hitherto unknown, and also an ample means of practical instruction to all Filipino youths who are studying for the noble profession of medicine. An examination of the brilliant articles of the "Philippine Journal of Science" will bear out the truthfulness of my eulogy.

However, if the insular government wishes to supplement adequately the efforts of the above-mentioned powerful means for preserving public health, it should also establish, for a methodical campaign against tuberculosis, the following institutions:

1. Special dispensaries for the tuberculous. At these dispensaries physicians should not only give medicines but professional advice regarding the manner of life of the patients and their conduct in social relations with their fellow-citizens, so that these dispensaries may serve as true schools for the campaign against tuberculosis.

2. A sanatorium for advanced cases should be erected in the outskirts of the city, on a high and properly conditioned site.

3. In the mountains of Luzon, in Benguet and Lepanto-Bontoc, one or more sanatoriums for incipient and only moderately developed cases should be built.

4. On the shore of the sea one or more sanatoriums for tuberculous children and patients with scrofulous symptoms should be erected.

If the Philippine treasury prove equal to the expense of establishing these institutions and the insular government vigorously undertake the task, within a few years we should see a rapid diminution of the present appalling mortality from the disease, and the American régime would have the honor of solving one of the greatest medico-social problems of the Philippines.

WHAT STATES, COUNTIES, AND MUNICIPALITIES MAY DO TOWARD THE ERADICATION OF TUBERCULOSIS.

By W. H. Sanders, M.D.,
Health Officer of Alabama.

Accepting the teachings of science as to the causation and propagation of tuberculosis, the practical and pressing question is: How shall the disease be eradicated? and especially what may be done by the States, counties, and municipalities of this country for its eradication?

The answer can be broadly formulated in the following words: Education, legislation, and money.

These being the forces upon which success will depend, the vital question is: How and by whom shall they be employed?

It goes without saying that medical men must be the educators; at least, they must be the leaders and directors of this force, the vigorous and judicious employment of which must precede, prepare the way for, and bring about the utilization of the two other forces mentioned.

Unless the people be taught the great truths in regard to the pathology and prevention of tuberculosis, they will not enact the legislation, or furnish the money, necessary for conducting a fruitful and successful crusade against the disease. This education must be effected by public lectures and by the distribution of literature.

That lectures by medical men on medical subjects frequently fail to attract audiences of laymen is well known, but may not the fault often lie with the lecturers, and not with the people? If a medical man discusses a medical subject in a dry, technical way and talks above the heads of his hearers, is it a wonder that he makes a bad reputation for himself, and for his profession too, as an entertainer and instructor on such subjects? Obviously, the remedy is for medical men to tell popular audiences the great salient truths in regard to tuberculosis in such way as to capture their attention and to reach and satisfy their understandings; then they will listen and learn, and will go away resolved not only to help in the great cause of eradication themselves,

but to become missionaries in propagating the spirit of coöperation to others. May the writer be pardoned for referring in this connection to some aids he has employed with good effect when addressing popular audiences on the subject of tuberculosis? One of these is to present to the eye a representation of tubercle bacilli sufficiently enlarged to admit of being seen from all parts of an ordinary hall, and to explain that the picture presented is a magnified representation of what is seen under the microscope when an examination of tuberculous sputa is made.

Such a picture at once relieves the tension on the imaginations of laymen as to the appearance of tubercular germs and satisfies their understandings far more effectually than any mere verbal description of tubercle bacilli, however good, can possibly do.

Another aid employed, and a very satisfying one to laymen, was to pass around through the audience one or more culture-tubes containing tubercle bacilli actually growing, and therefore visible *en masse* to the unaided eye. The final and crowning aid which a lecturer on tuberculosis can furnish in order to interest and instruct laymen is to exhibit specimens of the bacilli under the microscope. This can and should be done whenever time and the size of the audience admit of such a demonstration.

Without dwelling longer on how to get audiences to listen to lectures on tuberculosis, it may be added that many audiences, and of the best, can be had for the asking. This is true of the schools and colleges and of many of the social and literary clubs of the country. The lecture-field can be very greatly enlarged if medical men will avail themselves of opportunities of addressing audiences assembled for other purposes. While such audiences might not assemble primarily to hear an address on tuberculosis, yet, being assembled, they would no doubt often listen complacently and with profit to short and pithy talks on the subject.

I cannot leave this division of the subject without emphasizing the almost boundless opportunities medical men enjoy for educating the people on the subject of tuberculosis when officiating in that closest of all professional relations, namely, as family physician. Here they should occupy the dual position of physician and teacher, and should never lose an opportunity of sowing the seeds of such knowledge in regard to tuberculosis as will take deep root and spring up and bear fruit manifold.

The distribution of literature on the subject of tuberculosis ought to be, and will be, a very potent means of reaching and educating the people. The press should be appealed to for the use of its columns, and judging by its readiness to help in other good causes, such an appeal would not be in vain. Indeed, its aid is indispensable, for, as a molder of public opinion, no other influence is comparable with it, as its messengers are daily going to the firesides of the people, and any good cause it advocates and continues to advo-

cate will sooner or later prevail. In addition to using the press, short, crisp, and clearly written brochures and leaflets must be scattered broadcast until they reach every household of the land and carry into them such a knowledge of tuberculosis as will rouse up a profound and unalterable resolution on the part of the people to assault the enemy wherever found, and to continue the assault until his strongholds are captured and he is in full retreat.

While the education of the people is the first step to take in the campaign against tuberculosis, and is one that must be taken in order to render the other steps possible, yet no amount of education will of itself achieve the results we all so earnestly desire.

The second of the three essential forces mentioned, legislation, must be invoked in order to make any considerable progress in exterminating tuberculosis. Without it, all other efforts will be powerless and fruitless. While legislation may cover a tolerably wide range, the following laws are essential and must be enacted:

1. A law requiring that every case of tuberculosis, both in man and animal, shall be reported to the health authorities and classified.

2. A law providing for the establishment of State, county, and municipal sanatoriums for the treatment and care of the tuberculous.

3. A law requiring that all houses or places that are habitually occupied by tuberculous persons shall, at proper intervals, be thoroughly and scientifically disinfected, and finally disinfected when such occupancy ceases.

4. A law requiring that all places where large numbers of persons are congregated together, such as school-houses, colleges, manufacturing establishments, business houses, mines, etc., shall, at proper intervals, be rigidly inspected for the purpose of ascertaining whether the ventilation is adequate and other hygienic conditions good; also, whether any of the inmates show evidence of being tuberculous.

5. A law requiring that all persons known to be tuberculous, and who are allowed to pursue their ordinary avocations, shall comply with such prescribed rules as will prevent them from becoming a menace to others.

6. A law imposing a heavy penalty on landlords, or the agents of landlords, for selling or leasing a house that has been occupied by a tuberculous person unless adequate proof be furnished that such house has been thoroughly and scientifically disinfected.

7. A law authorizing boards of health to prescribe the rules with which tuberculous persons shall comply, whether they be in their own homes or in sanatoriums—all of which legislation must proceed from the legislatures of the several States.

Brief comment will now be made on the first and last pieces of proposed legislation, and in another connection the second piece will be defended. The reasons for the remainder are self-evident.

The need of a law requiring that every case of tuberculosis shall be reported is imperative, and when such a law is enacted, it must be inflexibly enforced.

Obviously, the first step that must be taken toward the destruction of an enemy is to find the enemy: so is it with tuberculosis.

Further, every case of tuberculosis, when found, must be classified from two points of view:

1. As to the stage of the disease, that is, whether in the first, second, or third stage.

2. As to the ability of the person to provide for himself and to surround himself with proper conditions, that is, whether fully or only partially able so to do, or whether wholly unable.

In the seventh or last piece of legislation suggested it was set forth that boards of health should be empowered to prescribe the rules with which tuberculous persons shall comply. No legislature, however favorably disposed, can provide by statute for all the varying conditions and circumstances that will arise in a war against tuberculosis; neither can county commissioners or municipal authorities so do; hence boards of health must be clothed with authority to meet these conditions and emergencies as they arise by rules that have the force and effect of law.

We now reach the discussion of the third and last one of the forces mentioned at the outset as indispensable in a warfare against tuberculosis, namely, money. It matters not how thorough education and how complete legislation may be, little will be accomplished toward the eradication of tuberculosis unless the price of redemption be paid in dollars and cents. Before proceeding to point out in a general way the purposes for which money is to be expended, let us pause a moment and contemplate the magnitude of the work to be achieved.

The proposition is to eradicate a disease that prevails in every clime and country, a disease common to both man and animal, a disease insidious in its approach and tenacious in its grasp, a disease that reaches more victims and over a greater number of routes and slays them more mercilessly than any other. Put the work involved in all of the greatest achievements of the past and that in the most stupendous enterprises of the present together, and they will shrink in magnitude far below the colossal proportions of the work that will be required for conducting a successful warfare against tuberculosis. Spasmodic and sporadic efforts will avail little; the war must be a world-wide, simultaneous, and coöperative one. It will not be a "thirty years' war," but a fifty years' war, yea, perhaps one hundred years from now our successors, if still fighting, may see "the last armed foe expire."

However stupendous the undertaking, the antituberculosis armies of the world should form an offensive alliance and press forward in the attack,

looking with prophetic eyes to the glorious day when the banner of science will proudly float over a vanquished foe.

From what sources shall "the sinews of war" be obtained? While private munificence may here and there do something for the cause, it is clear that the great burden of expense must fall on the governments. Not only so, in dealing with a disease so wide-spread and universal as tuberculosis each government must destroy the enemy in its own territory. So far as this government is concerned, each division must provide for its own tuberculous; one division need not wait for another to do its work. All should remember that were the disease entirely eradicated from a city, county, or State, such is the migration of population that reinfection would soon occur; indeed, freedom of any locality from infection would invite reinfection.

We are now prepared to summarize what may be done by the States, counties, and municipalities of this country for the eradication of tuberculosis. In addition to spreading a knowledge as to the causation and propagation of tuberculosis into every home and enacting all needed laws and ordinances, the following provisions are indispensable:

1. Each State must build, equip, and maintain at least one sanatorium for the treatment of incipient or curable cases of the disease. Such an institution should be intended more as an object-lesson and educational center for the counties and municipalities than for the purpose of providing for all of the curable cases in the State, as manifestly this would be impracticable.

2. Each county should provide two sanatoriums for its own people, one for incipient or curable cases, the other for advanced or incurable cases. In sparsely settled sections two or more counties might combine in establishing and maintaining the same sanatoriums.

3. Each city of 50,000 inhabitants or more should also provide two sanatoriums for its two classes of cases. Municipalities of less than 50,000 inhabitants might combine with the county in which they are situated in providing sanatoriums, the expense being pro-rated betwixt them. Such sanatoriums would be just as essential in a war against tuberculosis as military forts would be in a war against a foreign foe.

Proximity of sanatoriums to the people who need them is a condition worthy of the greatest consideration. The transfer of a victim of the disease, whether in the incipient or advanced stage, to a distant sanatorium would in many instances be attended by serious difficulties; a mother would refuse to give up son or daughter, and vice versâ; but if the sanatorium to which transfer is to be made be near by, this difficulty, which must be reckoned with, would be largely overcome.

Much can be accomplished everywhere by educating the people as to the methods of so providing for both incipient and advanced cases as to

surround the former with conditions favorable to recovery and the latter with conditions unfavorable to a further propagation of the disease. Simple and inexpensive accommodations for both of these classes of cases may be improvised, especially in rural districts, that people of even moderate means could well afford.

When every State, county, and municipality of the United States is equipped for the war on tuberculosis in the way briefly pointed out, and when the war is vigorously prosecuted in every one of them, and not until then may we expect conquests to be made in our country that can be verified by statistics. With corresponding facilities and warfare throughout the world, similar conquests may be expected everywhere. Then, and not till then, will victory be complete.

LA LOI ET L'INITIATIVE PRIVÉE CONTRE LA TUBERCULOSE.

Par le Dr. Boureille,
Paris.

Depuis bientôt vingt ans que la lutte contre la tuberculose est engagée dans le monde entier, les moyens les plus divers ont été préconisés pour triompher de ce fléau.

En vérité, aucun ne donna le résultat souhaité. La guerre au crachat n'a pas sensiblement diminué le nombre des cracheurs et encore moins celui des tuberculeux. Les résultats sérieux des divers sérums ne sont pas encore constatés, si ce n'est les aggravations produites par certains d'entre eux.

Les sanatoria ont guéri "économiquement" comme disent les Allemands, mais les rechutes fréquentes, les demi-guérisons, ont coûté trés cher pour transformer des moribonds en impotents. Les dispensaires eux-mêmes, sur lesquels furent fondées tant d'espérances, sont souvent demeurés de simples cliniques, magasins distributeurs de conseils mal écoutés, et de secours consommés en famille, léger palliatif à la misère des tuberculeux urbains. L'assainissement des villes n'aboutit la plupart du temps, qu'à la dénonciation des logements surpeuplés et insalubres, aux autorités impuissantes.

La lutte anti-tuberculeuse a cherché bien loin des armes nouvelles, elle a remué nombre d'enquêtes, connu beaucoup de misère, soulevé le voile sur les sanies que l'on voulait ignorer naguère, et s'en est tenue là.

Depuis vingt ans, on dirige une enquête sur la tuberculose et non pas une lutte anti-tuberculeuse.

Le sanatorium, le dispensaire, l'assainissement du logement, la guerre au crachat, la recherche du sérum sauveur ont fait le sujet d'études bien menées. très intéressantes, très académiques, surtout académiques.

Lutte sociale, lutte populaire, furent des mots sonores pour bercer les foules, mais ne traduisirent jamais une réalité.

Il en est de la lutte anti-tuberculeuse comme de certaines réformes, Tout le monde les reclame, mais quand il s'agit de construire, on trouve devant soi des difficultés tellement grandes, que force est de prendre du temps, et d'exécuter en des années, ce qu'on pensait faire tout de suite.

La lutte anti-tuberculeuse voit dressée devant elle une muraille très haute, inaccessible et infranchissable, semble-t-il. Contre elle se liguent les habitudes de mauvaise hygiène; les maisons de cinq à six étages, insalubres et surpeuplées, mais a valeur marchande très élevée; les intérêts patronaux dont l'ébranlement provoque des contre-coups dans le crédit d'une ville ou d'un Etat; la nourriture fraudée que l'on ne peut changer en un jour; les bas salaires que l'on n'élève pas, et les longues journées de travail que l'on ne diminue pas, sans provoquer des grèves dont la repercution est très étendue.

Ce faisceau d'intérêts particuliers et d habitudes mauvaises est tellement serré, et les parties en sont si solidaires, que toucher à l'une émeut la voisine.

De semblables réformes ne se font pas à coups de bons conseils ou de bonnes paroles, même pas à coups de lois solides, sévères, et appliquées rudement, elles exigent une transformation rationnelle et progressive des mœurs.

A Maladie Sociale Remède Social.

Sachons-le bien, la lutte anti-tuberculeuse est la lutte de l'intérêt général contre les intérêts particuleirs; la lutte de cinquante locataires d'un immeuble de six étages, contre leur propriétaire; la lutte de deux cents ouvriers d'une usine contre leur patron; la lutte de cent mille habitants d'une ville mal pavée, mal éclairée, mal nettoyée, contre leur municipalité; la lutte d'une partie de la nation miséreuse, mal nourrie et mal logée contre une autre partie du pays, plus heureuse; la lutte de ceux qui ne possèdent pas et ne dirigent pas, contre ceux qui possèdent et dirigent.

C'est l'éternelle révolte des esclaves contre Rome, c'est le mont Aventin dressé jusqu'à la fin des siècles, en face des inégalités et des injustices.

La lutte anti-tuberculeuse est donc une lutte sociale, mais seulement une phase de la lutte humaine. C'est pourquoi les moyens employés ont si peu d'action sur elle.

L'employeur, le propriétaire, qui cause sans le vouloir, assurément, quelquefois sans le savoir, la tuberculose de ses employés ou de ses locataires, a des intérêts respectables à ménager, des responsabilités considérables, des soucis qui l'empêchent souvent de voir les détails malsains de son atelier ou de sa maison. Cependant il peut être humain, désirer l'amélioration du sort de ses ouvriers, souhaiter en son for intérieur, un logement salubre pour ses locataires.

Mais quand l'heure des réalisations a sonné, force lui est bien d'avouer que s'il accorde telle amélioration, il abaisse ses revenus dans des proportions inquiétantes; que ce consentement entrainera celui de ses collègues propriétaires et patrons; qu'une part d'influence lui échappera et, que si l'intérêt de ses inférieurs exige ces satisfactions, son intérêt, à lui, demande de les refuser. Et l'intérêt particulier prime comme toujours l'intérêt général.

L'employé, le locataire, le dirigé, a aussi des intérêts respectables, des responsabilités considérables, des soucis qui l'empêchent de voir et de comprendre le raisonnement de l'employeur et du dirigeant. Il a une famille à sourrir, à payer un loyer toujours trop élevé pour sa pauvre bourse; chaque jour il lui faut besogner durement, pour manger le jour même; et souvent son horizon se borne au morceau de pain qu'il a sur sa table, et à la pièce de monnaie reçue la veille.

Pauvres salaires, pauvres logements, pauvres gens, tout leur est misère et peine, et point pour eux ne luit le ciel bleu.

Le besogneux pense lui aussi à son intérêt particulier. Il parle de solidarité humaine, mais ce n'est pas au nom de cette solidarité qu'il demande justice, c'est au nom de son intérêt personnel. Bien souvent, il n'hésite pas à ignorer ou à choquer l'intérêt du voisin quand le sien est en jeu.

Ainsi se trouvent en présence deux mondes, deux classes, qui ne s'entraident pas pour lutter contre la tuberculose, parce qu'ils ne se comprennent pas, et que la conversation est presque toujours impossible entre eux.

Et cependant, la solution du problème tuberculeux est facile. Donnez des logements salubres, à la place des taudis, créez un minimum de salaires, diminuez les heures de travail, mettez fin au scandale du travail féminin qui place la femme entre la misère et la prostitution, faites que le bien être soit mieux réparti. Tout cela est faisable immédiatetement; mais c'est la révolution probable. Beaucoup redouteront cette éventualité.

L'application des Lois luttera Victorieusement contre la Tuberculose.

Sans bouleverser quoi que ce soit, la rigoureuse et intégrale application des lois existantes, peut rendre des services éminents. Lois sur le travail, loi sur l'assistance médicale gratuite, loi sur l'assistance des vieillards, loi sur l'hospitalisation des indigents incurables, loi sur le repos hebdomadaire, loi sur les retraites ouvrières, loi sur les maisons à bon marché, loi pour la protection de la santé publique, loi sur l'ivresse publique: lois excellentes, lois sociales qui procurent déjà un mieux-être aux pauvres gens, et qui bien appliquées, lutteraient victorieusement contre la tuberculose.

Leur bon fonctionnement réduirait la misère, diminuerait le surmenage, donnerait plus d'air et de lumière aux logements et aux ateliers, procurerait un peu de repos aux travailleurs, assurerait une retraite et un logis à leurs vieux jours, réduirait cet autre danger, l'alcoolisme.

Tout ceci est possible: ne cherchons pas la suppression de la tuberculose dans la défense de cracher à terre, ou le sanatorium, ou tout autre moyen médical fut-ce un sérum; la médecine n'exterminera jamais la tuberculose. La panacée, c'est le bien-être, et ce bien-être est réalisable si la nation le

veut. La législation actuelle est une première étape dans cette lutte pour la vie. De son application immédiate, et de son perfectionnement, dépend le succès du combat engagé contre la tuberculose.

La Loi n'obtiendra des Victoires durables qu'avec l'aide de l'Initiative Privée.

Seule, la loi ne donnera pas de bons résultats parce qu'elle se présentera avec un cortége de sanctions, et que le public verra en elle le commandement et non la justice.

La loi doit être accompagnée d'institutions dues à l'initiative privée: ces institutions préparent le peuple à l'acceptation de la loi.

Les organisations privées qui ont pour but spécial la lutte anti-tuberculeuse ne donneront donc de résultats appréciables qu'autant qu'elles réaliseront les désirs du législateur et procureront un bien-être plus grand à l'individu.

L'œuvre anti-tuberculeuse sera d'abord une œuvre d'assistance et de préservation des prédisposés, car les menacés sont de beaucoup plus nombreux que les atteints; et seulement en second lieu, elle fera œuvre de guérison. Les ressources disponibles seront proportionnelles au nombre des individus manquant de bien-être, c'est-à-dire que la plus grande partie en sera attribuée à la préservation toujours certaine et la plus petite à la guérison si aléatoire.

Parmi les organisations anti-tuberculeuses existantes, celles qui sans conteste rentrent le mieux dans le cadre des œuvres de Préservation et d'Assistance, donnent l'aide la plus sérieuse au législateur, tendent le plus à augmenter le bien-être, et par là à diminuer la tuberculose, sont à coup sûr: le Dispensaire-Préventorium anti-tuberculeux, et les Colonies de vacances et Œuvres du grand air.

Première arme Préventive de l'Initiative Privée: Le Préventorium Anti-Tuberculeux.

Mais il faut bien s'entendre sur le Dispensaire anti-tuberculeux. Quand j'emploie ce mot: dispensaire-préventorium anti-tuberculeux, je n'ai en vue, ni les anciennes cliniques anti-tuberculeuses, qui ont simplement changé de nom; ni les dispensaires-sanatoriums, où les malades séjournent pendant le jour; ni les dispensaires de thérapeutique, qui traitent le malade dans son foyer d'infection; ni les dispensaires qui répondent seulement à des préoccupations politiques ou à des vues particulières. Le dispensaire-préventorium ne s'occupe pas de traiter, encore moins promet-il la guérison; il n'est pas outillé pour cela. Il se trouve en ville, au centre d'un foyer de tuberculose, c'est-à-dire à l'endroit de la ville, où l'air et le soleil manquent le plus,

où la misère est la plus grande, où le surmenage est le plus intense. Et son premier acte serait de maintenir des malades dans un tel milieu, en prétendant remédier avec des médicaments, à un état causé par la misère, le surpeuplement, l'insalubrité, le surmenage, l'alcoolisme!

Le dispensaire qui laisse de propos délibéré le tuberculeux dans le foyer d'infection où il vit, est une institution mauvaise et anti-sociale au premier chef.

C'est seulement quand il y a impossibilité absolue d'éloigner un tuberculeux de la zone dangereuse où il vit, qu'il est permis au dispensaire de l'y assister médicalement; mais c'est là un pis-aller, et le nombre des malades justiciables de cette mesure d'humanité, est toujours très restreint.

J'entends par Dispensaire-Préventorium Anti-Tuberculeux, un centre d'action anti-tuberculeuse animé d'un esprit vraiment moderne. Il recherchera, découvrira les malades; établira l'étendue des foyers d'infection, et notera leurs causes véritables, presque toujours contraires aux lois. Puis il exigera l'assainissement des foyers découverts.

Ce dispensaire n'a pas mission d'appliquer les lois—c'est l'affaire de la force publique—mais de signaler à qui de droit, tel foyer de tuberculose causé par la non exécution des lois. Ce préventorium doit en outre parer aux premières nécessités, soulager tout de suite les misères trop grandes; procurer immediatement un logement salubre; envoyer rapidement à la campagne les enfants les plus menacés; diriger aussitôt vers le sanatorium ou la cure libre, le malade curable que rien n'attache à la ville.

En un mot le dispensaire-préventorium dépiste et étudie le foyer tuberculeux, assiste tout de suite les cas urgents, signale les causes illégales de tuberculose, et préserve les non atteints. Le dispensaire-préventorium est un bureau d'enquête et de préservation anti-tuberculeuse, auxiliaire indispensable de l'autorité chargée de veiller à la santé publique.

Tel est le rôle paralégal et de première urgence, si j'ose dire, du Préventorium anti-tuberculeux moderne. C'est en somme à peu de chose près, le rôle du premier dispensaire-préventorium créé par Calmette, à Lille; mais si étendue qu'en soit l'action, elle peut être portée encore plus loin, car la prévention anti-tuberculeuse ne doit laisser dans l'ombre aucun moyen d'adoucir le sort des deshérités.

Certaines améliorations ne sont pas d'urgence absolue, ne relèvent pas de la loi, et n'en demeurent pas moins très désirables.

Le Préventorium doit utiliser toutes les formes actuelles de l'Assistance et de l'Hygiène sociales.

Ainsi, le Bain-Douche offre la propreté aux travailleurs pour un prix infime. La Goutte de Lait procure du lait pur aux enfants. Le Restaurant Economique donne une nourriture saine et peu chère aux célibataires et aux ouvriers qui travaillent loin de leur domicile; il est complété par une coopéra-

tive de consommation, où les familles pourront acheter des produits alimentaires à prix réduits.

Le Préventorium réclame une colonie de vacances pour envoyer à la campagne, ou à la mer, plusieurs mois par an, les enfants sains des tuberculeux ses clients. L'action de cette colonie de vacances est continuée sur un terrain de jeux extra-urbain, en plein air, où les enfants se rendent le plus souvent possible.

Le Préventorium demande enfin des maisons à bon marché, où les menacés, les guéris, et ceux qui ne peuvent quitter la ville, trouvent pour une somme modeste, un logement salubre.

La cure libre que le Préventorium choisit pour ses malades non contagieux, est simplement la campagne au pays natal. Le médecin de famille prodigue les soins nécessaires. La moitié du voyage est payée par la Compagnie de chemin de fer. L'autre moitié et les honoraires du médecin, sont à la charge de l'Œuvre. La famille loge gratuitement le malade, et lui assure l'assistance alimentaire en partie tout au moins. S'il est nécessaire, la Commune et le Préventorium aideront la famille. Le Sanatorium et l'hôpital recoivent selon leur degré de maladie, les tuberculeux contagieux que ne peut accepter la cure libre.

Le Préventorium créera, si ses resources le lui permettent, ces diverses organisations. La plupart du temps son trop modique budget l'en empêche. Il devra faire alliance avec les œuvres qui peuvent l'aider dans son action anti-tuberculeuse.

Que le Préventorium ait ou non sous sa dépendance immédiate, une Goutte de Lait, une cure libre, une colonie de vacances, un terrain de jeux, une maison à bon marché, un restaurant économique, une coopérative de consommation, un bain-douche, cela n'a pas d'importance. Le principal est que par l'intermédiaire du Préventorium, les habitants du foyer tuberculeux puissent jouir de tous les moyens préventifs et curatifs que la science moderne met à leur disposition.

Seconde arme Préventive de l'Initiative Privée: Les Œuvres du Grand Air.

Les Colonies de Vacances et œuvres du Grand Air ne sont pas de simples auxiliaires du Préventorium. Elles teinnent une place considérable dans l'armement anti-tuberculeux. Leur action combinée avec celle d'un Préventorium, même modeste, donne des résultats de la plus haute importance, dans la préservation anti-tuberculeuse.

Les Colonies de Vacances et œuvres du Grand Air demandent ainsi que le Préventorium à être mises au point.

Par envoi au grand air, il ne faut pas comprendre ces départs hatifs d'enfants des villes à la mer ou à la campagne avec retour le jour même ou le

lendemain, voire au bout de trois ou quatre jours, départs si fréquents au moment des fêtes et des grandes vacances.

Les trains de plaisir et les trop courts séjours ne donnent pas de repos, bien au contraire, aux prédisposés à la tuberculose. Ne sont pas de véritables œuvres du grand air, les colonies de vacances où les directeurs placent la conquête de l'esprit des enfants avant l'amélioration de leur corps. Ne meritent pas le titre de colonies de vacances, les œuvres qui conduisent les enfants militairement, leur font faire de longues courses, développent à outrance les exercises physiques, et tiennent plus de la société de gymnastique que de l'œuvre du grand air. Ne rentrent pas dans notre catégorie, les colonies qui prennent au hasard les enfants pauvres, et risquent de laisser dans le foyer dangereux urbain, les prédisposés à la tuberculose, alors qu'elles dirigent vers la campagne ou la mer, des enfants vivant dans un excellent milieu, pour qui ce voyage sera un luxe et non une nécessité.

La vraie colonie de vacances choisit les enfants à préserver parmi les fils et filles sains de tuberculeux, les anémiques, les convalescents de maladies graves, les mal logés les mal nourris, en un mot les prédisposés à la tuberculose.

La colonie idéale préfère les enfants faibles, derniers de leur classe, aux enfants vigoureux toujours en tête de leurs camarades.

Pour l'admission des enfants, cette colonie se fie à l'avis du médecin examinateur, et non à la recommandation de telle personne influente ou charitable.

Les enfants à qui l'air pur est le plus nécessaire, et qui peuvent le trouver le moins difficilement avec leurs propres moyens, sont examinés au départ et au retour. D'après l'avis médical ils seront envoyés à la mer, à la campagne, ou à la montagne et non en bloc ici ou là, selon les ressources de l'œuvre.

Quand l'œuvre dispose d'un faible budget, elle choisit sa colonie à la campagne qui n'est dangereuse pour aucun enfant.

D'autres questions préoccuperont les Directeurs d'œuvres du Grand Air: la surveillance des enfants, leur mode de placement en internat ou familial, etc. Le soin de ces détails est laissé à l'initiative de chacun. Le caractère de l'œuvre n'a en effet aucun intérêt en soi, pourvu que de but principal soit l'amélioration physique des enfants.

Ce qui importe, est le recrutement et l'examen des enfants, questions d'ordre absolument médical, sans lesquels les colonies de vacances deviennent de simples promenades, où la santé de l'enfant passe au second plan.

Telle est la façon d'entendre la colonie de vacances, œuvre du grand air.

Le Bien-Être guérit la Tuberculose.

Le Préventorium moderne d'une action si étendue, et la cure d'air préventive pour l'enfance menacée, donneront des résultats merveilleux, le

jour où l'on sera décidé à en tenter l'expérience sur une population importante.

Aides de ces deux organisations créés par l'initiative privée, les pouvoirs publics peuvent, s'ils veulent bien tenir la main à l'exécution des lois d'Assistance, d'Hygiène et de Travail, diminuer la tuberculose d'une façon notable en peu d'années.

Cela est si vrai que des résultats convenables ont été obtenus avec des Dispensaires-Préventoriums et des Colonies de Vacances créés hâtivement, sans ressources suffisantes, ne réalisant que partie de leur programme, et limitant malgré eux l'action préventive.

Et cependant des victoires importantes, restent à l'actif de ces organisations anti-tuberculeuses incomplètes.

Certains foyers tuberculeux ont rétrogradé, d'autres ne se sont plus développés et des enfants fortement prédisposés, anémiques, sont maintenant de solides gaillards pleins de santé et de vie; des salaires furent regagnés, du travail a pu être accompli par ces malades guéris maintenant, des logements propres et salubres remplacent les taudis où ils contractèrent la tuberculose: le mal n'a pas atteint ceux qu'il guettait, des vies humaines ont été conservées.

N'est-ce pas là un fait social d'une très haute portée?

Et puisqu'on éprouve tant de difficultés à attaquer de front le fléau tuberculeux, à démolir les maisons insalubres, à aérer les ateliers, à augmenter les salaires, à diminuer les heures de travail, à transformer rapidement les habitudes; puisqu'il est fou de songer à une victoire absolue, et que la Cité de l'Avenir où tout sera "joie et santé" est encore si lointaine, pourquoi ne pas realiser tout de suite, ce qui est possible?

Les lois existantes, aidées du Préventorium Anti-Tuberculeux, et des colonies de Grand Air, formeront la première étape vers le Bien-Être qui seul guérira l'Humanité de la Tuberculose.

THE PREVENTION OF TUBERCULOSIS.

By J. L. Medina, M.D.,
New York.

The medical profession, after years and years of constant and conscientious work, combating against the ignorant and reactionary elements of society, seems to have succeeded in awakening the civilized world to realize and appreciate the most dangerous situation in which the human race stands to-day, due to the constant increase, and inevitable fatal termination, of all cases of pulmonary tuberculosis.

When a meeting like this is on account of a certain epidemic prevailing in a certain locality or country, the interest on the subject is also localized; but in the present instance the whole world, and individually every human being, is anxiously waiting some word of encouragement, indicating the way of avoiding, or at least of diminishing, the great death-rate from tuberculosis as it unfortunately stands to-day.

A little more than twenty-five years have passed since the tubercle bacillus was discovered by our eminent guest, Prof. Robert Koch, to whom the whole world owes a great debt, and his name will go to posterity linked with those of the great benefactors of humanity. His discovery has been of inestimable value to the profession, giving the foundation or the starting-point for all kinds of experiments, in the hope of finding the successful treatment of the disease.

The etiology of tuberculosis was not clearly understood at that time, but since the discovery of the bacillus the exact scientific explanation of the pathological changes was easily comprehended. With the right understanding of the causes of the disease, a new impetus and great stimulation were given to research, and great hopes filled the hearts of the profession, with certain degree of assurance that in a short time a way would be found to check the progress of this most dreadful enemy of mankind.

Great praise is due to the bacteriologists for all that they have accomplished already for the good of humanity, and what we may expect in the future from these scientific wizards can only approximately be surmised.

But the expectations of the profession and the public from the bacteriological laboratories in this particular instance have been not only exaggerated and unreasonable, but to a certain extent inconsistent with the knowledge we have of the disease.

For a quarter of a century the whole world has expected to wake up one day to find a certain preparation, a drug, a toxin, a lymph, or something like it, which will surely cure pulmonary tuberculosis in every stage of the disease. To expect this is to expect a physical impossibility. This is not a case of a membranous exudation, as in diphtheria.

During the later period of the first, second, and third stages of pulmonary tuberculosis the lung tissue undergoes such pathological changes that the organ does not exist any longer as originally, and whatever is left intact will surely follow its inevitable process of disintegration. This inconsistent expectation has been the cause of bitter disappointment to the public, doubting the efficiency of the medical profession for not finding that expected panacea that they have heard and dreamed about, but that has not, and will not, materialize.

Before going any further I will state that I wish to be rightly understood, and beg that the following remarks under no consideration should be construed as a criticism of any one, or of any of the different methods of treatment advocated to date. Personally, I have the greatest regard for every enthusiast on the subject of treating tuberculosis, and I have been for years one of them, during my connection with hospitals and dispensaries in the city of New York. I fully appreciate the vast amount of good that all hospitals, sanatoriums, dispensaries, and boards of health are doing for our unfortunate fellow-creatures who are doomed to destruction, my object being only to present an impartial study of the real and true existing conditions, as far as practical results are concerned, in checking the spread of the disease or reducing the mortality.

I will not quote here the personal experience of any one, nor reach any conclusion based on guesswork, and will take as a standard the official statistics published by the Board of Health of the city of New York.

We must bear in mind that it is quite impossible for any board of health to obtain accurate records, especially about this particular disease. In private practice cases of tuberculosis are seldom reported, for obvious reasons: A great number of patients absolutely refuse to consult a physician if they suspect themselves to be afflicted with the disease; others patronize only the so-called "institutes" of the sure-cure style, managed by irregular physicians. The certificate of death frequently omits the words "phthisis pulmonalis" as the primary cause of death to suit the wishes of the family, for personal or financial reasons, and so the only source of reliable information comes from the public institutions.

The total number of deaths from all causes, as recorded in this pamphlet by the Board of Health of New York, is as follows:

Isle of Manhattan, from 1887 to 1897, with an average population of one to one and a half million inhabitants, total number of deaths from all causes	457,458
Total number of deaths from all kinds of tuberculosis during the same period	60,576
From 1897 to 1907, with an increase in the population of half a million inhabitants, the total number of deaths from all causes was	438,034
During the same period the number of deaths from tuberculosis was	62,296
During last year, 1907, the total number of deaths from all causes was	47,698
From tuberculosis	6,809
Including what is called greater New York, with 4,000,000 inhabitants, during 1907 the number of deaths from all causes was	79,215
During the same year, 1907, from tuberculosis	10,262
Number of cases reported during 1897	9,735
During 1907	24,363

From the study of the previous statistical figures we are forced to reach the conclusions:

1. That during the last ten years, with an increase of about half a million over the number of inhabitants of the previous ten years, still the total number of deaths from all causes did not increase proportionally, but instead diminished by 19,424.

2. That during the same ten years the number of deaths from tuberculosis does not show the same diminution, nor remains as in the previous ten years, but actually shows a numerical increase of 1720.

3. That the diminution in the general death-rate no doubt is due to the better understanding of the hygienic rules, the higher standard of education of the people, and in no less degree to the efficient boards of health. Incidentally, I may state right here, as a matter of justice, that too much praise cannot be given to the Board of Health of the city of New York for the masterful way in which they manage their department. It would be worth while and profitable to other cities to study the most up-to-date methods employed by that institution.

4. That with all the present advanced methods and the great amount of work done to better conditions as far as curing or checking the spread of tuberculosis, our efforts have been palpably insufficient.

Our inability to arrest the constant spread or diminish the mortality from tuberculosis plainly shows that we have not started in the right direction. To my mind, the only rational and effective treatment for pulmonary tu-

berculosis to-day is the preventive treatment. It will be a comparatively easy matter to accomplish this if we only accept the principle; science, money, and brain ingenuity will do the rest.

The prevention of tuberculosis will have to be declared a national issue. Unless the Federal Government of this mighty nation takes the lead in the campaign, the individual efforts will be lost and ineffective. The national Congress ought to vote an annual sum for the establishment and maintenance of a permanent national board of health, to direct the others, to help, instruct, and coöperate to destroy the greatest enemy of the human race.

If the national government should place tuberculosis in the same category as yellow fever, smallpox, and bubonic plague, it would not take very long to notice the improvement. If an epidemic of yellow fever appears somewhere, every branch of the government is put at once in action, and, regardless of cost or work, the epidemic is checked, may be with a loss of a few hundred cases in so many years; while with tuberculosis we have become so familiarized that we see every year in this country 150,000 able citizens march to the unknown, to join the millions and millions already gone, and simply satisfy ourselves with not being included in the line of march so far.

Immigrants suffering from pulmonary tuberculosis ought not to be admitted to this or any other country. Immigrants are required to have a few dollars in their pockets on arrival in this country; it would be far wiser to admit them without a cent, so long as they are free from tuberculosis. There is enough tuberculosis here already.

The State authorities ought to coöperate in an effective manner, helping in a practical way to secure adequate legislation for the municipalities. Boards of health, no matter how efficient, cannot be expected alone to attain complete success in their difficult undertaking; the magnitude of the charge is such that it will require the personal, financial, and influential coöperation of the whole community.

There should be established permanent national, State, and city committees, the last to be subdivided into district committees, to visit, canvass, instruct, report, and follow or locate all cases of tuberculosis coming in that section. The district committees should endeavor to enlist the services of volunteers, with authority to arrest offenders for spitting on the floors of vehicles of all kinds, sidewalks, theaters, churches, etc.

Compulsory obligation on the part of the attending physician to report to the health authorities every case of tuberculosis coming under his professional care is of the greatest importance. This procedure has worked admirably in New York with diphtheria, typhoid fever, smallpox, and others, but tuberculosis was not included in the list, I think, until lately.

I said before that the only rational and effective treatment for tuberculosis is the preventive treatment; but how is this prevention to be accomplished? Simply by the constant, persistent, systematic, and compulsory education of the public.

By education of the public I do not mean that painful attempt usually made in the hope of instructing the far-advanced consumptive—Oh, no! The education of that man or woman was neglected long ago, and now is too late; besides, the consumptive usually bears some spite toward the rest of society, and is persistently reactionary to prophylactic measures.

The education, to be effective, must begin in the school-rooms. The instructions received at the school practically instruct the unborn, and certainly we could not begin earlier. Just think for a moment of the hundreds and hundreds of thousands of boys and girls leaving the schools every year; these boys and girls will represent in the future hundreds and hundreds of thousands of families practising prophylactic measures themselves, and teaching the same principles to their future generation.

Every applicant for admission to a public school ought to have a thorough physical examination before being admitted; this examination to be conducted by the official physician appointed for that purpose by the respective board of health; in case of doubt in the diagnosis, the sputum to be examined microscopically. Children with tuberculosis ought not to be admitted to a public school.

Children receiving public instruction from the institutions provided by the municipalities ought to be under the surveillance of the local committees, to be reasonably sure that their way of living is up to the required standard of cleanliness, and that the other measures conducive to the prevention of tuberculosis are observed.

Elementary hygiene ought to be included in the program of studies in the public schools. Children in public schools ought to have a certain number of lectures on tuberculosis, and the ways to avoid infection, using plain language and objective methods, exhibiting specimens, etc., to be easily understood by the young pupils. Prizes might be distributed to the pupils best posted on the subject, and other minute points can be brought out for the perfection of the method that I have roughly outlined.

There are a thousand other ways to reach and instruct the public. In New York, for example, a series of lectures are given every year by the Board of Education in the auditorium of the public-school buildings. These lectures deal with different subjects, principally history, and usually are illustrated with stereopticon views. To these lectures a few more could be added, dealing in hygiene, with special reference to the prevention of tuberculosis. The services of the public press ought to be solicited, and stimulated to work constantly, and not spasmodically, as they do now, keeping before

the public a systematic way of instruction, making known constantly the true condition of affairs, showing clearly and concisely the way to avoid contracting the disease. The form of advertisements is very attractive to the public.

If during the last twenty-five years we had devoted more time and energy to the prevention of tuberculosis, instead of depending nearly entirely on the momentarily expected curative treatment, the present condition would be a great deal more satisfactory. Still, it is never too late to begin; and I feel sure that we have no reason to lose courage, but, on the contrary, full of determination, let us go ahead in the right direction, and in much less than a quarter of a century pulmonary tuberculosis will have come to the same level as the other benign diseases.

PLAN GENERAL DE CASAS SANITARIAS Y HOGAR AMUEBLADO PARA LOS POBRES Ó CLASE TRABAJADORA DE LOS TROPICOS, EN INTERÉS DE LA CRUZADA CONTRA LA TUBERCULOSIS.

Por el Jose F. Toraya,
Arquitecto.

El escritor somete á la consideracion del Congreso un plan y modelo de una cuadra de edificios perfectamente sanitarios, á propósito para los trópcos. Cada casa y sada cuarto está arreglado de modo que tengan luz y aire, y no hay cuarto que no tenga á lo menos dos ventanas al exterior.

El plan indica el método de construcción y el gasto y señala la inspección que debe ejercer el Gobierno ó la municipalidad para su protección.

También se presenta un croquis modelo de las casas que muestra la disposición interior de cada cuarto, arreglo de las camsa, el trabajo sanitario y la cocina.

Plan général de maisons sanitaires ou d'une maison meublée pour la classe pauvre ou ouvrière dans les pays tropicaux.—(Toraya.)

L'auteur présente pour la considération du Congrès un plan et des modèles d'un bloc d'habitations parfaitement sanitaires et adaptées aux régions tropicales. Chaque maison et chaque pièce arrangée pour avoir de l'air et de la lumière, et aucune pièce n'a moins de deux fenêtres extérieures. Le plan présente la méthode de construction et le coût, et signale la surveillance que devrait exercer le gouvernement ou la muncipialité en ce qui concerne la protection et l'inspection.

Un modèle des maisons est aussi présenté, démontrant la disposition intérieure des pièces, le placement des lits, les arrangements sanitaires et la cuisine.

General-Plan von gesunden Häusern und einem eingerichteten Heim für die arme oder arbeitende Classe in den Tropen.—(Toraya.)

Der Autor unterbreitet der Erwägung des Congresses einen Plan und Modelle eines vollständig gesundheitsgemässen Gebäudeblocks, der sich für die Tropen eignet.

Jedes Haus und jedes Zimmer ist arrangirt mit einem Ausblick auf Licht und Luft, und kein Zimmer hat weniger als zwei Aussenfenster.

Der Plan zeigt die Methoden der Construction, die Ausgaben und Fingerzeige in Bezug auf die Controlle, die durch die Regierung oder Stadtverwaltung beim Schutze und der Inspection ausgeübt werden sollte.

Ein schematisches Modell der Häuser ist ebenfalls vorgelegt, welches die innere Anordnung jedes Zimmers zeigt, und die Aufstellung von Betten, zusammen mit gesundheitlicher und Küchenarbeit.

General Plan of Sanitary Houses and a Furnished Home for the Poor or Working Class in the Tropics.—(TORAYA.)

The writer submits to the consideration of the Congress a plan and models of a perfectly sanitary block of buildings suitable for the tropics. Each house and each room is arranged with a view to light and air, and no room has less than two outside windows.

The plan shows the method of construction and the expense, and points out the control that should be exercised by the government or municipality in the protection and inspection.

A schematic model of the houses is also presented, showing interior disposition of rooms and arrangement of beds, together with sanitary work and kitchen.

After expressing his hearty appreciation of the manifest spirit and interest of those who participated in the work of Section VI, saying some words of special gratitude to those who came from other countries, and hoping that succeeding Congresses might bring all present together again with constantly increasing profit and good-will, General Wyman declared the Section adjourned.

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